Anatolian Iron Ages

The Proceedings of
the Second Anatolian Iron Ages Colloquium
held at İzmir, 4-8 May 1987

Edited by A. Çilingiroğlu and D. H. French

British Institute of Archaeology at Ankara Monograph 13
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The drawing on the cover shows a detail from a Urartian belt in the Adana Museum (Inv. No. 26.1.1973)

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II. ANADOLU DEMİR ÇAĞLARI SEMPOZYUM BİLDİRİLERİ

İzmir Uluslararası Sempozyumu
4–8 Mayıs 1987

Türkiye Cumhuriyeti, Dışişleri Bakanlığı'nın
izniyle

Ege Üniversitesi, Edebiyat Fakültesi

ve

Ankara İngiliz Arkeoloji Enstitüsü

tarafından düzenlenmiştir

PROCEEDINGS OF THE 2ND ANATOLIAN IRON AGES COLLOQUIUM

An international colloquium at İzmir
4th – 8th May 1987

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and

British Institute of Archaeology at Ankara

İÇİNDEKİLER

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TEŞEKKÜRLER

Bu kitapta yayınlanan makaleler bildiri sunanlardan İzmir'de teslim alınmıştı. Makalelerin karşılaştırılması ve düzeltilmesi ise daha sonra Ankara'da gerçekleştirilmiştir. Kitabın kelime-işlem (Amstrad PC1512) uygulamaları Christal Türkmen ve Figen Kirişcioğlu, düzenlemesi ve lazer-jet yazıcıda (HP Series II) hazırlanması Christal Türkmen tarafından yapılmış ve Oxford, Oxbow Books Yayınevine yayıma hazır olarak 30 Aralık 1990 tarihinde gönderilmiştir. Türkçe bildirilerin İngilizce çevirileri ve İngilizce bildirilerin Türkçe özetleri Gülgün Kazan, levhaların çizimleri ise Pervin Bilgen tarafından gerçekleştirilmiştir.

Christal Türkmen, Figen Kirişçioğlu, Gülgün Kazan ve Pervin Bilgen'in gösterdikleri başarı ve yaptıkları yardımlar buradaki kısa teşekkürden fazlasına layıktır.

ACKNOWLEDGEMENTS

The contributions to this volume were collected in İzmir. Subsequently the papers were collated and edited in Ankara, prepared on word-processor (Amstrad PC1512) by Christal Türkmen and Figen Kirişçioğlu, formatted and produced on laser-jet printer (HP Series II) by Christal Türkmen and finally sent to Oxbow Books, Oxford as camera-ready copy on 30 December 1990. The Turkish manuscripts were translated into English and the English language papers summarized in Turkish by Gülgün Kazan. Supplementary illustrations were drawn by Pervin Bilgen.

To the expert and deft assistance, therefore, of Christal Türkmen, Figen Kirişçioğlu, Gülgün Kazan and Pervin Bilgen more is owed than can be acknowledged in this one, brief sentence.

ÖNSÖZ

Sardis ve Gordion kazılarının 1950'li yıllarda tekrar başlaması ve bunu takiben Urartu Krallığına ait yerleşme yerlerinin araştırılması Anadolu Demir Çağları ile ilgili bilgilerimizin önemli derecede artmasını sağlamıştır. Demir Çağlara gösterilen ilginin artması 1984 yılında bu konuda düzenli bir kolokyum planlanmasına neden olmuştur. Ege Üniversitesi Edebiyat Fakültesi tarafından başlatılan bu uygulama, başarılı olduğu kadar, övgüye de değerdi. Bu toplantıların üçüncüsü bu yılın Ağustos ayında Van'da gerçekleştirildi.

Bu kitapta sunulan makaleler Demir Çağ araştırmalarındaki bazı güncel akımları yansıtırlar. Demir Çağ Anadolu'sunun Doğu Akdeniz gelenekleri ve sanatsal gelişmesindeki yeri ve önemi gibi çok önemli noktalara bildirilerin sunulması sırasında değinilmişse de, burada yayınlanan makaleler bu konuları yeterince aydınlatamamaktadır. Üzülerek belirtmek isteriz ki Hitit mirasının önemi ve Friglerin kültürel etkisi gibi bazı noktalar da (-ki bunlar örnek olarak seçilmiş iki noktadır) yine bu bildirilerde yeterince irdelenememiştir.

Tüm bunlara karşın, düzenlenmiş olan bu üçüncü kolokyumun, dikkatleri İ.Ö. 1. binin ilk yarısında Anadolu Demir Çağ Krallıklarının önemine, oynadıkları role ve bu çağda Akdeniz ile Yakındoğu'nun komşu ülkeleri arasındaki karşılıklı etkileşim ve alışveriş üzerinde yoğunlaştırabilmesini ümit etmekteyiz.

Altan Çilingiroğlu
David H. French
30.11.1990

EDITORS' PREFACE

Since the re-opening of excavations at Sardis and Gordion in the Fifties and the subsequent exploration of sites in the Urartian kingdom there has been considerable broadening of the information relevant to any study of the Anatolian Iron Age. This expansion of interest was reflected in the proposal, made in 1984, to initiate a regular colloquium on the subject. The initiative taken by Aegean University has been both admirable and successful. The third of the series has, indeed, taken place at Van in August of this year.

The papers presented in this volume reflect some of the current trends in Iron Age research. One important element, however, though outlined in the sessions, is not fully represented in the published papers, namely, the role and status of Iron Age Anatolia in the development of artistic styles and traditions throughout the eastern Mediterranean. The importance of the Hittite legacy and the cultural influence of the Phrygians (to take two examples) are, sadly, not reflected in these proceedings.

Nevertheless it is the hope of the organizers that the third colloquium in the series will devote attention to the role and status of the Iron Age kingdoms of Anatolia and the inter-play and inter-change between the neighbouring and juxtaposed states of the Near East and Mediterranean in the first half of the First Millennium BC.

Altan Çilingiroğlu
David H. French
30.11.1990

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KISALTMALAR
ABBREVIATIONS

AA	*Archäologischer Anzeiger*
ActaArch	*Acta Archaeologia*
AfO	*Archiv für Orientforschung*
AJA	*American Journal of Archaeology*
AMIran	*Archäologische Mitteilungen aus Iran*
AnatSt	*Anatolian Studies*
ArchJ	*Archaeological Journal*
BaM	*Baghdader Mitteilungen*
ILN	*The Illustrated London News*
IrAnt	*Iranica Antiqua*
IstMitt	*Istanbuler Mitteilungen*
JAOS	*Journal of the American Oriental Society*
JGS	*Journal of Glass Studies*
JNES	*Journal of Near Eastern Studies*
MDOG	*Mitteilungen des Deutschen Archäologischen Instituts*
MedMusB	*Medelhavsmuseet, Bulletin*
ZDMG	*Zeitschrift für Deutschen Morgenländischen Gesellschaft*

TÜRKÇE ÖZETLER
TURKISH SUMMARIES

01. Yazılı kaynaklara göre Anadolu'nun kalay gereksinmesi ve kalay yatakları sorunu

Oktay Belli

Bu yazıda yazılı kaynaklara dayanılarak Anadolu'da kalay kullanımı ve kalay ithalatı araştırılacaktır. Anadolu'ya İ.Ö. 2. binyıl başlarında ve daha sonra İ.Ö. 13. yüzyılda kalay ithal edildiği yadsınamaz bir gerçektir. Ancak bu kalayın nereden ithal edildiği bilinmemektedir. Kısa bir süre önce keşfedilmiş olan Toros kaynaklarının bu büyük boyutlu tunç üretiminin ihtiyaçlarını karşılayamayacağı ortadadır.

Değişik kaynaklar İ.Ö. 2. binyılda kara ve deniz yoluyla gerçekleştirilmiş olan kalay ticareti ile ilgili bilgiler vermektedir. Anadolu Demir Çağ Krallıkları bu kalayı, tunç yapımında kullanmış olmalıdırlar. Aynı şekilde Lidya, Pers, Hellenistik, Roma ve Bizans dönemlerinde de kalaya aynı amaçla ihtiyaç olduğu düşünülmekteyse de elimizde, Roma dönemine ait bazı belgelerin dışında, bunu kanıtlayacak kaynak yoktur.

Arap tüccarlar İ.S. 8. yüzyıl başlarından itibaren Malezya'da bulunan kalay hakkında bilgi sahibi olmuşlar ve buradan kalay ithal etmişlerdir. Fakat 13. yüzyılın ortalarından itibaren kalay ve bakır Mısır'a İngiltere'den gelmeye başlamıştır. İslami kaynaklar Anadolu'da kalay yataklarının varlığından sözetmezler. 11. yüzyıldan sonra ise Yakındoğu (Bizans, Anadolu, İran ve Mısır) kalayı Venedikli ve Cenevizli tüccarlardan almaya başlamıştır.

Henüz yayınlanmamış olan Osmanlı arşivleri kalay ticareti ve vergilendirilmesi hakkında bazı bilgiler vermektedir. Ancak hiç bir belgede Anadolu'daki kalay kaynakları hakkında kesin bir bilgiye rastlanılmamıştır. Osmanlı İmparatorluğu dönemi boyunca Yakındoğu'nun tüm kalay ihtiyacı İngiliz kaynakları tarafından karşılanmıştır. Sonuç olarak tarihöncesi dönemlerden beri Anadolu'ya kalay ithalatı yapıldığı söylenebilir.

Günümüz madencilik uzmanlarınca Anadolu'da tek bir kalay yatağı bilinmektedir. Bu kaynak, Bursa iline bağlı Soğukpınar yakınlarındaki Madenbelenitepe'dir ve bu kaynağın kullanılmış olduğuna ait hiç bir delil yoktur.

02. Köşkerbaba Höyük Demir Çağı çanak-çömleği

Önder Bilgi

Bu bildiride Köşkerbaba Höyüğün (Malatya'nın yaklaşık 24 km kuzeydoğusunda bulunmaktadır) 3. ve 4. katlarından elde edilmiş olan Demir Çağ çanak çömleği incelenecektir. Burada çizimleri verilmiş olan Demir Çağ çanak çömlek grubu 3. katta bulunan büyük bir yapıda ortaya çıkarılmıştır. Hepsi çarkta şekillendirilmiş olan bu çanak çömlek genellikle koyu bej, kahverengi ve koyu kırmızı renklidir ve kırmızı boya ve oluk çizgilerle bezenmiştir. Boya bezeme bu dönemde oldukça yoğun bir şekilde oluk bezemeden yaygın olarak kullanılmıştır.

3.kat çanak çömleğin daha erken örneklerine 4.katta rastlanılmıştır. Ancak arada bazı farklılıklar vardır.

Köşkerbaba'da ithal malı çanak-çömleklerede rastlanılmıştır. Bunlar açık renk zemin üzerine koyu renk ve genellikle Frig olarak adlandırılan bezeme ile dekore edilmiş çanak çömlek, Med ürünü (?) 'triangle ware' olarak tanımlanan çanak çömlek (Van kalesinde görüldüğü gibi), Asur 'Saray' çanak çömleği ve Kıbrıs kökenli (?) kırmızı çanak çömlekten oluşmaktadır.

Dip kısmında üç adet atkı kulp olan çanaklar ise Filistin yöresinden bilinmektedir.

Tüm bu buluntular arasında Urartu çanak çömleği olarak değerlendirilecek bir örnek yoktur.

03. Dilkaya'da Erken Demir Çağ

Altan Çilingiroğlu

Dilkaya mezarlık alanında 1984 yılında başlanan çalışmalar farklı türde çok sayıda mezar ve mezar geleneğinin varlığını ortaya çıkarmıştır. Dilkaya mezarlık alanında bulunan Demir Çağa ait mezarlar iki guruba ayrılabilir. 1. inhümasyon mezarlar 2. kremasyon mezarlar. İnhümasyon mezarlar de kendi içinde iki bölümde incelenebilir. Bunlardan ilki taş sandık mezarlar, ikincisi ise oda mezarlardır. Bunların dışında Dilkaya mezarlık alanında elegeçen ancak burada bahsedilmeyen 150 adet kum mezar ortaya çıkarılmıştır.

İnhumasyon taş sandık mezar tek bir örnekle, oda mezarlar ise iki örnekle temsil edilirler. Kremasyon gömü II no.lu oda mezarda ve 1984 yılında bulunan bir sandık mezarda kullanılmıştır.

Kremasyon gömünün urneler içinde daha sık yapıldığı görülmektedir. 1990 yılına kadar tümü Orta Demir Çağa tarihlenen 20 urne bulunmuştur.

Mezarlık alanında bulunan taş sandık mezarların paralellerini çevrede bulmak bir hayli güçtür. Bu nedenle mezarların tarihlenmesi içlerinden çıkan buluntularla yapılmak durumundadır. Bu tarih ise büyük bir olasılıkla Erken Demir Çağ sonları; İ.Ö. 11. veya 10. yüzyıllardır.

04. Luristan'dan Proto-Arabik yazıtlı tunç kılıç

Hanne Lassen ve Vagn Fabritius Buchwald

Geç Bronz Çağın gelişmiş metalurji teknolojisi kalıplama yöntemiyle tek parça silah üretimini mümkün hale getirmişti. Böylece bıçak ağızları ile kabzaları arasında sağlam birleşme yerleri olan silahlar üretilmişti. Bunlar daha erken dönemlerde görülen ve kabzası bıçak kısmına perçinlenmiş hançer ve kılıçlara oranla oldukça sağlamdılar. Döküm yöntemiyle yapılmış olan bu kama ve kılıçlar süngüleme ve darbe indirme işlemleri için oldukça dayanıklı silahlardı.

Shir-i Shiqat kılıcı tipolojik olarak kabzası döküm tekniğiyle yapılmış olan hançerler ve kabzalarının uç kısmında kürevi dörtgen, dikdörtgen veya trapezoidal biçimli geniş çıkıntıları olan kılıç ve kamalar grubuna dahil edilebilir. Aşağıda bazıları Luristan kazılarında bulunmuş olan bir grup benzer eser sıralanmıştır. Bulunmuş oldukları ortam bu hançerler ve kamaların Geç Demir Çağ I de üretilmiş olduklarını ortaya koymaktadır. Bu tarih şu anda söz konusu olan tipin, kabzası döküm yoluyla yapılmış olan kamalar ve Kutali Gulgul (Vanden Berghe 1973:25) buluntularında olduğu gibi geniş çıkıntıları olan kamalarla aynı tarihte kullanılmış olduklarını doğrular niteliktedir.

Luristan mezarlığında konik biçimli kabzalara sahip birçok kamanın bulunmuş olması incelenen kılıcın tarihlenmesine yardımcı olmuştur.

Üzerinde bulunan yazıt (Proto-Arabik) "Hafi'ye iyi şanslar" anlamına gelmektedir.

Burada bu silahın metalurjik özellikleri detaylı olarak anlatılmıştır.

05. Demir Çağı cam eserleri

C.S. Lightfoot

Yakın geçmişte cam ile ilgili bilimsel araştırmalarda büyük gelişmeler olmuştur. Yayınlanmış olan bir çok katalog ve gerçekleştirilmiş olan birçok teknik inceleme 'antik çağ cam eserleri' ile ilgili bilgilerimizi arttırmıştır. Öte yandan halen devam etmekte olan kazılardan da şaşırtıcı buluntular elde edilmektedir. Özellikle Prof. George Bass tarafından Türkiye'nin güney sahillerinde, Serçe Limanı ve Ulu Burun'da bulunan batık gemilerden çıkartılan malzeme kronolojik sürecin iki ucundaki bilgilerimize çok büyük katkılarda bulunmuştur. Ancak, bu konuda sayıları giderek artan yayınlar, özellikle bu konuda uzman olmayan kişiler için, problem yaratmaktadır. Bu nedenle bu çalışmadan amacım sizlere M.Ö. 1. binyılın ilk yarısına tarihlendirilmiş cam eserlerle ilgili çalışmaların bugünkü durumu ile ilgili bilgileri özellikle Mezopotamya ve Fenike'de cam üreten merkezler üzerinde yoğunlaşarak ve mümkün olduğunca Anadolu'dan örnekler vererek anlatmak ve yorumlamaktır.

06. Urartu kralı Menua'ya ait anıtsal tunç kollu şamdanın yapımı ve Üretimi

Rivka Merhav ve Arie Ruder

İsrail Müze koleksiyonlarında sergilenen üstü işlemeli ve kollu şamdan üzerindeki kral Menua'ya ait yazıt nedeniyle kesin olark tarihlendirilebilmektedir. Bu eserin yakın benzerleri Karmir-Blur'da, Toprakkale'de, Altıntepe'de ve Kayalıdere'de elegeçmiştir.

Bu makalede eserin yapım tekniği ve metal analizleri detaylı olarak anlatılmaktadır.

07. Urartu'nun güneybatı yayılımı üzerine yeni gözlemler

Veli Sevin

Urartu devletinin güneybatıya Fırat'a doğru genişlemesi, dünyanın bilinen en eski ve en uzun karayollarından birinin teknik açıdan gelişmiş bir sistemle inşa edilmesi ile kolaylaştırılmıştır. Ortalama 5.40 metre genişliğinde olan bu yol, 3.90 metreye kadar daralabilmektedir. Yolun iki yanına belirleyici olarak yan yana taşlar dizilmiş olmasına rağmen, yolun yüzeyi taş bloklarla özenilmeden kaplanmıştır. Yolu desteklemek amacıyla yamaçlara taştan setler örülmüş olduğu gibi, gerekli yerlere köprüler de kurulmuştur.

Bu yol üzerinde yer alan koruma ve konaklama amaçlarına yönelik dikdörtgen planlı tipik Urartu tesisleri, yolun Urartu dönemine tarihlendirilmesini doğrulamaktadır. Bu tesislerde elegeçen yüzey buluntuları da önerilen bu tarihi destekleyici niteliktedir.

08. Luwi diliyle onun ardılı Demir Çağ Anadolu dilleri ve ilk İran dilleri arasındaki belirgin bağlantı - "Türk" ismi ve Anadolu'lu "Tarkhun" (hükümdar, padişah, lord) ismi arasındaki muhtemel bağlantı

Bilge Umar

Luwi diliyle onun ardılı Demir Çağ Anadolu dilleri ve ilk İran dilleri arasında oldukça belirgin bir bağlantı vardır. Bu bağlantıyı özellikle kelimelerin sontakılarında görmekteyiz, ör: (1)-wana (Luwi dilinde) -ana (Demir Çağ Anadolu dillerinde) (2) -wanda (Luwi dilinde) -anda (Demir Çağ Anadolu dillerinde) (3) -ka (Luwi dilinde) -gah (İran dilinde) olarak kullanılmışlardır.

Çalışmanın ikinci kısmında Sogdiana yöresindeki Luwi ve Hitit öğeleri tartışılmıştır.

Üçüncü kısımda ise Sogdiana yöresinde Tark- ve Türk- öğeleri incelenmiştir.

09. Urartu tapınaklarının mimari kökeni

David Ussishkin

İncelenmiş olan ilk altı tapınak hem plan hem de yapısal özellikler açısından yakın benzerlikler gösterirler. Araştırmadaki ikinci tip tapınaklar dikdörtgendir. Üçüncü bir tip tapınak ise II. Sargon tarafından Khorsabad'ta yaptırılmış olan bir kabartma taş plaka üzerinde gösterilmiştir. Bu kabartma üzerinde Musasir'de bulunan Haldi tapınağının İ.Ö. 714 yılında yağmalanması resmedilmiştir. Bu tapınaktaki bazı ögeler Urartu tapınağı ile benzerlikler gösterir.

Özet olarak elde bulunan belgeler Urartu olarak kabul edilmiş kare ve dikdörtgen üç değişik mimari tipin olduğunu ortaya koymaktadır.

Standart plana sahip Urartu tapınakları 8. yüzyıl sonları ile 7. yüzyıl arasındaki bir döneme tarihlendirilirler.

Standart Urartu tapınaklarında gözlenen plan, biçim, mimari stil ve süsleme benzerlikleri, hatta aynılığı, ortak bir kökene işaret etmektedir. Şimdiye kadar bu tapınaklara öncülük edebilecek mimari herhangi bir yapıya Urartu kabileleri tarafından yerleşilmiş olan topraklarda rastlanılmamış olması, bizi bu tip bir yapının kökenini Urartu dışında aramaya zorunlu kılmıştır. Bana göre Kargamış'ta bulunmuş olan bir yapı bu konu ile ilgili önemli bir ipucu vermektedir.

Fırtına tanrısı tapınağı ile Urartu tapınakları arasındaki benzerlik ortak bir kaynak ve kavramın varlığına işaret etmektedir. Yaklaşık İ.Ö. 900 veya öncesine ait olan Kargamış kutsal alanının Urartu tapınaklarından daha öncesine ait olduğu açıkça ortadadır. Biz standart Urartu tapınaklarının büyük bir olasılıkla Kargamış'tan veya Kuzey Suriye'den kaynaklandığını önermekteyiz.

10. Elazığ Müzesinde bulunan Burmageçit Urartu kemer parçaları

Recep Yıldırım

1985 yılında Tunceli ilinin Burmageçit köyünde yol çalışmaları sırasında rastlantı sonucu bir grup Urartu eseri ortaya çıkarılmıştır. Burada, bu eser grubu içinde yeralan kemer parçalarından sözedilecektir. Elazığ Müzesi kayıtlarında Burmageçit'ten getirilmiş 19 tunç kemer parçası vardır. Sözkonusu kemer parçaları altı başlık altında incelenecektir.

A) Düz bant süslemeli kemer parçaları (no. 1-3)
B) Zig-Zag motifli kemer parçaları (no. 4-8)
C) Hayvan frizli kemer parçaları (no. 9-12)
D) Av sahneli kemer parçaları (no. 13-19)
E) Süvari tasvirli kemer parçaları (no. 16)
F) Değişik süslemeli kemer parçaları (no. 17-18)

Burmageçit'te aynı mezarlıktan veya mezardan elegeçmiş olan diğer Urartu buluntuları üzerindeki bezemeler dikkate alınarak incelenen parçalar I.Arghişti (İ.Ö. 785-760) ve oğlu II. Sarduri (İ.Ö. 760-730) dönemlerine tarihlendirilebilir.

11. Karapınar - Kıcıkışla Demir Çağı buluntuları

Levent Zoroğlu

Bu makalede çeşitli yayınlarda Karapınar kökenli olarak tanımlanan ve müze ve özel kolleksiyonlara dağılmış olan bir grup Demir Çağ kaplarının tarihleri ve önemleri üzerinde durulacaktır. Gerçekten de bu eserler Karapınar'n 26 km. kuzey-doğusunda bulunan Kıcıkışla yakınlarında bir höyükte elegeçmişlerdir. Burada bulunan kaplar genel olarak İ.Ö. 7. yüzyıla tarihlendirilirler. Bu eserler Orta ve Geç Frig dönemlerine ait kaplar, kırmızı astar üzerine siyah boyalı keramikler ve İyonya kaselerinden oluşurlar.

Aynı makalede bu kapların, Orta Anadolu'yu Çukurova'ya bağlayan yol ve doğu-batı Akdeniz ticaret yolu ile olan ilişkileri ve bu ilişkilerin önemi üzerinde durulmuştur.

01. THE PROBLEM OF TIN DEPOSITS IN ANATOLIA AND ITS NEED FOR TIN, ACCORDING TO THE WRITTEN SOURCES *

Oktay Belli
İstanbul

The history of tin-exploitation in Anatolia and of tin-importation is investigated here by recourse to the written sources both proto-historic and historical. Tin was certainly imported in the early Second Millennium and again during the 13th century BC. The origin of this imported tin is not known. It is clear, however, that the Taurus sources, recently discovered, were not sufficient to meet the needs of large-scale bronze production.

Various sources provide evidence of trade in tin by land and by sea in the Second Millennium BC. By implication the Iron Age cultures of Anatolia needed tin for their bronze industry. Similarly the requirement for tin during the Lydian, Persian, Hellenistic, Roman and Byzantine periods (epigraphically attested for the Roman period) is implicit but the sources are not known.

Arab merchants knew of and traded in Malaysian tin after the beginning of the 8th century AD but by the mid-13th century tin (and copper) was brought from Britain to Egypt. In Islamic sources no mention is made of tin sources in Anatolia. After the 11th century, the Near East (Byzantine Empire, Anatolia, Iran and Egypt) received its tin from Venetian and Genoese merchants.

Unpublished Ottoman archives provide some information on the movement of and taxation on tin but no document gives precise information on tin sources in Anatolia. During the Ottoman period, it seems, British sources provided tin for the whole of the Near East. Anatolia, it is concluded, had been importing tin since prehistoric times.

One Anatolian tin-source is known to modern mineralogists: Madenbelenitepe near Soğukpınar in Bursa province. There is no evidence of exploitation.

Cuneiform tablets concerning the trading activities of the Assyrian merchants at Kaneş/Kültepe in Central Anatolia provide us with satisfactory information about the tin trade in Anatolia in the early Second Millennium BC. The Assyrian merchants exported tin and cloth to Anatolia and in return imported gold, silver, silver-lead, copper, precious and semi-precious stones to Assyria (Bilgiç 1941: 915). It is still not known from where Anatolia obtained the necessary tin before and after the Assyrian Trading Colony period (17th century BC).

The aim of this paper is to discover whether or not there have been any deposits of tin in Anatolia, by making use of historical and proto-historic written sources. It is also intended to learn from whom, how and under what trade conditions it had been imported.

It has been discovered from the cuneiform tablets found at Kültepe that the Assyrian merchants exported 17,500 items of textile and 13.5 tons of tin to Kaneş in

a time span of 40 to 50 years. The total amount of trade was 100,000 items of textile and 100 tons of tin (Larsen 1967: 40).

We learn from one of the Hittite inventory documents of the 13th century that silver, copper, tin and other metals were obtained from Kizzuwatna (Kosak 1982: 77) during the Hittite Kingdom period but there is no single piece of evidence showing us whether Kizzuwatna imported tin from other regions or obtained it from its own local deposits. As a result of research carried out in the central Taurus region, it has been suggested that there is cassiterite - a sort of tin oxide - in the region (Yener and Özbal 1987: 220). It was found, for example, mixed with silver-lead (galena) or lead, in an old, small gallery in the vicinity of Çamardı near Niğde (Yener 1988: 18) but the amount of tin obtained from this gallery was very small. Here we are faced with another question. What percentage of the tin obtained from Anatolia covered the requirements of the bronze industry? It is understood that tin production at Çamardı could never have satisfied the needs of a large-scale production of bronze. The same problem is also noted at Bolkardağı.

It is estimated, however, that tin was a very valuable metal during the Hittite Kingdom period. When the Hittite inventory documents were examined, it was seen that tin, tin-plated cult objects and other types of object were not very common during this period (del Monte and Tischler 1978: 399; Kempinski and Kosak 1977: 91).

We assume that the tin found in the shipwrecks of Ulu Burun (near Kaş), dated to the 14th century, and Gelidonya, dated to the 12th century, was coming from the east (Bass 1985: 625, 630; 1986: 293). The large quantity of tin ingots in different shapes show that Anatolia had acquired tin by means of importation during this period.

The Tell al Rimah tablets which have been dated to the beginning of 13th century, provide detailed information, especially concerning the origin of the tin imported by Assyrians. For example, one tablet says that "50 mina (25 kg) tin was imported from Nairi" (Wiseman 1968: 183). This document also demonstrates the existence of trade relations between Nairi and Assyria at the beginning of the 13th century, during the reign of Shalmaneser I, King of Assyria (1280-1261 BC). During this period, the lands of Nairi were enclosed by the Murad and Karasu rivers (the sources of the Euphrates) on the west and by the lands south of Lake Van on the east.

When the documents of the Late Assyrian period are examined, it can be seen that *Habuskia*, *Bit-Zamani*, *Bit Halupe* and *Laqe*, in other words, the lands southeast of Lake Van, Diyarbakır and northern Syria had very rich tin reserves and, by means of taxes and tributes, they covered the tin requirements of the Assyrian Kingdom (Jankowska 1969: 264). The geographical situation of these regions, which were on a famous trade route (beginning most probably in Afghanistan and reaching the Mediterranean via the south of Lake Urmiye and northern Syria), enabled them to hold in reserve a large amount of tin.

We still do not know from where the Urartians, who were the biggest metal-working society of Anatolia and the Ancient Near Eastern world in the First Millennium BC, obtained tin to produce bronze objects and weapons. Today these objects, which weigh thousands of kilograms, are on display in the various museums of Europe, America, Japan and especially of Turkey. Unfortunately the very few Urartian cuneiform texts do not provide information about tin and other mineral

deposits in eastern Anatolia. Perhaps tin, which was brought to the Mediterranean from the east through routes south and north of Lake Urmiye and northern Syria, was also enough to meet the needs of the Urartian Kingdom. It is my opinion that tin was an extremely valuable commodity both for the Assyrians and for the Urartians in this period. Because the Assyrian king, Sargon II, who looted the famous Musasir/Ardini temple during his eighth campaign against the Urartians and their allies in 714 BC took to Assyria a large amount of tin (the quantity is not revealed) together with one ton of gold, ten tons of silver, one hundred and nine tons of bronze, iron, ivory and some precious stones (Mayer 1983: 104-111).

As is known, the Phrygians, who were the rulers of Central Anatolia in the First Millennium BC, had a very advanced bronze industry but we do not know from where the Phrygians acquired the tin necessary to produce these bronze objects and weapons.

Although we have very detailed information about gold and silver production during the Lydian period, we have no written information about the source of tin which was used to produce bronze objects, weapons and statues.

Unfortunately, the written documents again do not provide information concerning the source of tin found in Anatolia during the Persian, Hellenistic, Roman and Byzantine periods. For example, the Anazarbus inscription, which gives the tax rate on the import of tin, does not give the name of the place from where tin was imported (Dagron and Feissel 1987: 170-185, Fig. 108). Without any doubt, however, the Anazarbus inscription proves that tin was imported to Anatolia during this period. The most famous bronze workshops of Europe and the Middle East were in Constantinople, the capital of Byzantine Empire. As a result, the bronze church doors cast in these workshops were exported to Italy and achieved great fame (Heyd 1879: 113).

After the beginning of the 8th century AD, Arabic merchants had very close trade relations with India, Malaysia and China. Tin, which was very cheap and abundant in Malaysia, was the first item of trade carried by boat. It is also very interesting that this commodity was loaded onto ships at a harbour which was called "tin" (Heyd 1879: 37). It is still obscure, however, whether Malaysian tin, which covered the needs of the whole of the Middle East, reached Anatolia or not but we do know that Arabic merchants could not continue the trade with these countries after the political changes in the Far East, in other words, after the Mongol conquest. In fact, it is known that tin and copper was brought from England to Alexandria in Egypt in the mid - 13th century (Heyd 1879: 464).

After the beginning of the 10th century, many Muslim geographers, travellers and historians gave detailed information about the mining beds and natural richness of Eastern Anatolia and its environs but they did not say a word about tin deposits and tin trade in Anatolia.

After the end of the 11th century, there were active Venetian and Genoese colonies at Constantinople, a centre of international trade. These colonies had close relations with London, Sandwich and Southampton in England and in exchange for wine, spices, sugar, wool and silk brought from the East they bought cheap and abundant English tin and copper (Heyd 1879: 715; Penhallurick 1986: 148). Thus it is understood that after the end of the 11th century the tin requirement of the Byzantine Empire, Anatolia, Iran and Egypt was satisfied through Venetian and Genoese merchants. Pegolotti, for example, who acted as an

agent in Florence in 1335, described in detail the 5% tax on the tin which was brought to Tabriz by the Genoese merchants (Heyd 1879: 133).

The Menteşe Beylik, which governed Western Anatolia in the mid-14th century, had trade relations with the Genoese through the harbour at Palatia (modern Balat, ancient Miletus). This trade consisted of the import of tin, lead, soap and cloth and the export of leather, alum, carpets and various foodstuffs (Heyd 1879: 594; Wittek 1934: 124).

Mehmed bin Mansur (in his unpublished book, *Cevhername*) gives us detailed information about the mines and raw material deposits Eastern Anatolia and neighbouring regions. His book was written in Persian in the second half of the 15th century and was dedicated to Uzun Hasan Bey, the ruler of the Akkoyunlu State. In this work, which was the first and oldest book about the mineral deposits of Anatolia, it was especially noted that there were no tin deposits in Anatolia. Mehmed bin Mansur states that there were three important tin sources in the world. These were in the south of China, in Bulgaria (probably the central Volga region, north of Lake Urmiye) and in Europe. This information given by Mehmet bin Mansur was confirmed by other Muslim writers (Penhallurick 1986: 19). Tin from "Bulgaria" was more valuable than tin from Europe and Afghanistan, because it was purer, whiter and brighter.

The first laws of Eastern Anatolia were published by Uzun Hasan Bey, the Akkoyunlu ruler in the second half of the 15th century. These laws were also adopted by the Ottomans by the second quarter of the 16th century. They were the most important arrangements yet made in Eastern Anatolia for the ordering of social, political and economic life. In these laws, which were called by the names of important cities and towns, under the heading 'trade' the amount of tax, for example on the imported tin sold in the cities or on the tin passing in transit, was explained separately. From the amount of tax, we discover that the taxation on tin was lower than the taxation on other metals, since tin was a vital necessity for Eastern Anatolia. On the other hand, the taxation on tin which was in transit was quite high (Barkan 1943: 85, 137, 138, 156, 159, 161, 162, 183, 185, 187). Unfortunately these laws did not give information about the origin of the imported tin. Another interesting aspect about the taxation is that the tin bars carried on horses, mules, donkeys and camels were taxed on the basis of the animal which carried the load, as in the prehistoric period.

In the last six years, we have carried out a team project on 380,000 unpublished documents found in the Prime Ministerial Ottoman Archives (Başbakanlık Osmanlı Arşivi) and in the Topkapı Palace Museum Archives in İstanbul. Among these important records, which have been classified according to subject, we have discovered thousands of documents concerning the gold, silver, lead, silver-lead, lead monoxide, copper, iron, alum, arsenic, sulphur, potassium nitrate, sodium carbonate, salt, clay, precious and semi-precious stone resources which were being exploited during the period of the Ottoman Empire. Unfortunately we found only one document relating to tin deposits in Anatolia. This document dated to 1831 says that:

> **"As an addition on the 50,000 kuruş previously given, an extra 150,000 kuruş was assigned from the mint for the arsenic and tin mines which were found in the Hoşap and Hakkari Sanjaks to the southeast of Lake Van".**
>
> *Başbakanlık Osmanlı Arşivi, Muallim Cevder Darphane*, no. 1544.

In spite of the many documents, however, about the working of the above mentioned arsenic and even the export of arsenic to Iraq, Syria and Egypt, no documents concerning the exploitation of tin deposits were found.

Moreover, to date, we could find no evidence in the archives for the tin deposits located in the Central Taurus region or for their exploitation, as is claimed in Hittite written sources and by some researchers. There are hundreds of documents, however, mentioning the rich silver, lead and silver-lead (galena) deposits which were exploited during the period of the Ottoman Empire. These documents can provide even the amount of the silver and lead produced at that time.

Tin was also a most important requirement for the arms industry as well as for social needs during the early Ottoman Empire but there is no evidence indicating the origin of the imported tin. The Venetians, however, kept the Anatolia, Iran, Syria and Egypt trade in their hands at the end of the 11th century. The Venetians, who signed an important trade agreement with the Seljuks at the beginning of the 12th century, signed another trade agreement with the Ottomans just after the latter established their Beylik. The Venetians gained important privileges from Sultan Orhan and his son, Murad I.

The Burgundian knight, Bertrandon de la Brocquière, was invited to the Ottoman palace in Edirne for a feast given by Murad II in 1433 and praised the interesting things that he saw during the feast,

> **"Food was served on two large gold plates. There were many silver drinking cups with feet and there were nearly a hundred shallow cooking pans made of tin".**
>
> Dilger 1967: 107

These shallow cooking pans must have been copper pans which were frequently tinned as we do today with copper vessels.

A second trade agreement was signed by the Venetians just after Sultan Mehmet Fatih conquered Istanbul. Although these agreements do not state clearly that tin was brought to the Ottoman lands by Venetians or Genoese, I am inclined to believe that in fact this was the case. It is still not known, for example, from where the tin to make the bronze artillery pieces which were cast during the siege was obtained.

Following the reign of Sultan Mehmet Fatih, the Ottoman Empire expanded its frontiers during the reigns of Sultan Selim Yavuz (the Grim) and Sultan Süleyman Kanuni (the Magnificent). Thus there was a big demand for tin in order to produce the thousands of bronze artillery pieces used during this period. We learn, however, from the trade laws which were in force during the period of Sultan Mehmet Fatih that there was only a 2% tax on imported tin. The tax rate on tin importation was kept low in order to encourage its importation (Barkan 1943: 292, 294; Beldiceanu 1967: 17).

Again we learn from another law (dating to 1566), which is very important for our work, that "there was a 3% tax on the tin imported from Hungary and sold on the Ottoman market" (Barkan 1943: 319). Unfortunately the law does not state the origin of the tin brought to Hungary: from neighbouring Bohemia which had rich tin deposits or from England?

In the second half of the 16th century, tin - like other metals - was scarce on Ottoman territory. On this account precautionary measures were taken. For example, a firman which was sent to the governor of Egypt says:

> **"immediately lay hands on the tin, copper and silver which were sold (even though it was forbidden to sell these metals abroad) to Portuguese merchants and which are now in the depots of Suez and Jidda".**
>
> *Başbakanlık Osmanlı Arşivi, Mühimme Defteri*, No. 7, hk. 813.

During the Ottoman-Iranian wars which took place between 1577-1590, the Ottoman Empire imposed an economic embargo on Iran and prohibited the sending of silver and valuable metal coins to Iran. For example, a firman dispatched from İstanbul to the governor of Erzurum in 1579 says:

> **"Although for a long time it has been forbidden to send tin, gold, silver, lead, copper and valuable coins to Iran, they are being exported by unofficial channels. It is requested that no one be permitted to take these kinds of metals to the East and, if someone does, that you lay hands on these metals on behalf of the state".**
>
> *Başbakanlık Osmanlı Arşivi, Mühimme Defteri*, No. 33, hk. 303.

English merchants, who had remained passive in the trade between Mediterranean and Middle Eastern countries in the Medieval period, became active in the Mediterranean trade only after the battle of Lepanto in 1571. Until then, as was mentioned above, Venetian and Genoese merchants had carried English tin to the East. English merchants signed a trade agreement with the Ottoman Empire in 1580 and started to carry tin to Ottoman harbours by the ships of their own trading companies (Kurat 1953: 24; Kütükoğlu 1974: 13). The Venetian ambassador wrote two reports to his government in 1585 and 1596 and concerning the situation in İstanbul informed them that

> **"there was much happiness in İstanbul upon the arrival, in the harbour, of the English ships, loaded with tin and cloth, because there had been a scarcity of these goods in İstanbul for a long time. We also know that there are some other English ships coming to İstanbul again loaded with these goods. Take measures, therefore, not to let the English merchants completely to take over the trade".**
>
> Kütükoğlu 1974: 17

Although the Papacy sometimes prohibited the exportation of tin, iron, steel and other metals to the Ottoman Empire on account of hostilities, the English trading companies never obeyed these prohibitions (Kurat 1953: 64).

After the end of the 16th century, the English trading companies provided tin not only for the Ottoman Empire but also for Iran and the whole Middle East. At the beginning the tax on tin was 5% as on all other metals but later it was decreased to 3% (Kütükoğlu 1974: 22, 24 n. 70, 74). After 1820 the tax on tin was only 1% (Kütükoğlu 1974: 80). The decrease indicates both that during this period the Ottoman need for tin reached its highest level and that privileges gained by the English trading companies similarly rose to a high level.

From the hundreds of written documents in the archives, we can ascertain the tonnage of tin which the English merchants exported to the Ottoman Empire each year and at what price the tin was sold.

According to proto-historic and historical documents that we have been investigating over the years, we discover that there were no rich tin deposits in Anatolia. On the other hand, the small deposits were never on a scale to satisfy the needs of a large manufacturing industry. Anatolia thus had been importing tin since prehistoric times.

Detailed surveys, carried out by the Mineral Research and Exploration Institute of Turkey (MTA) in recent years, have shown us that there is only one rich tin deposit in Anatolia. This is at Madenbelenitepe, an area in the Handere valley near Soğukpınar, a township of Keleş south of Bursa (Prentis 1980: 55, map 20; Altun *et al.* 1979: 40; Kaptan 1980/81: 170, map 2). There is no evidence, however, for the exploitation of this deposit.

The result of our investigations is to show that between the Second Millennium BC and the 11th century AD tin was imported to Anatolia from the East, most probably from Afghanistan and Malaysia. Thereafter, between the 11th century and the mid-19th century, 98% of Anatolia's tin consumption was provided by England.

Notes

* The work "Eskiçağ, Ortaçağ ve Yeniçağ kaynaklarına göre Anadolu'nun kalay gereksinmesi ve kalay yatakları sorunu", of which we have given only a summary here, is to be prepared as a monograph.

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02. IRON AGE POTTERY FROM KÖŞKERBABA HÖYÜK

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The paper presents Iron Age pottery from Levels 3 and 4 at Köşkerbaba Höyük (24 km ENE of Malatya). The corpus of Iron Age pottery illustrated here was excavated in a large structure of Level 3. The pottery is wheel-made, usually cream, brown and dark-red in colour and decorated with red-painted patterns or with grooves. Painted decoration was the more frequent and was common throughout the period of Level 3. Earlier versions of Level 3 pottery were found in the fourth level. There are differences.

Imported pieces are present: so-called Phrygian patterned Dark-on-Light, (?)Median 'Triangle Ware' (as at Van Kale), Assyrian 'Palace Ware', (?)Cypriot Red-painted Ware.

Bowls with three 'strap-feet' are known from Palestine.

No Urartian pottery has been definitively identified.

The pottery that is presented in this report was unearthed during the rescue excavations carried out by İstanbul University at Köşkerbaba Höyük on behalf of the Middle East Technical University from 1978 to 1985. Köşkerbaba Höyük is now covered by the waters of the Karakaya Dam (**Pl. 02.1**).

The excavations at Köşkerbaba Höyük, which was situated in the village Fırat (*c.* 24 km ENE of Malatya), were carried out in three trenches: A, B and C (**Pl. 02.2**). As a result of these excavations, a corpus of pottery consisting of cups, jars, bowls, jugs, flasks, medium size and large size pithoi was encountered in the third and fourth architectural levels of the third cultural layer.

The pottery, excavated in the third architectural level and dated to the Middle Iron Age, was found in a large structure which had one small and one large storeroom (**Fig. 02.1**). In fact, this architectural level had two structural phases but the upper phase was a repair of the lower phase structure (**Fig. 02.2**). There is no technique or shape difference, however, between the pottery produced in these two phases. The shapes of the pottery are:

1. Various types of cups
2. Deep bowls with outsplayed rims (**Fig. 02.4.1**)
3. Bowls with double handles, neck and wide mouth or large bowls with double handles, spout and hole mouth (**Fig. 02.4.2**)
4. Jugs with trefoil rim (**Fig. 02.4.3**)
5. One handled flasks with symmetrical or asymmetrical bodies (**Figs. 02.5.1** and **2**)
6. Medium size jars with double handles or without handles (**Fig. 02.6.1**)
7. Jars buried *in situ* as deep as the rounded parts of their bodies (**Fig. 02.7.2**).

The fabric of this pottery, which was poorly slipped and burnished, is usually tempered with average sized grits. The pots are all wheel-made but are not well-fired, as can be inferred from the fact that they were very fragile, usually had a dark coloured slip and had a somewhat thick, black core. These pots are usually cream,

brown and dark red in colour and decorated with paint or grooves. The painted patterns are usually geometric motifs composed of bands and lines in dark red. This kind of decoration is usually seen on flasks and jars (**Figs. 02.6.3 and 4**). It is clear from the large number of sherds collected that painted decoration was very common during this period.

Patterns made with grooved lines are seen only on flasks and on medium size jars. On flasks the decoration is used on the side where there is no handle. Patterns are composed of concentric circles (**Fig. 02.1**) like the pottery of the Second Millennium BC.

Geometric motifs formed by grooved lines are found on the shoulders of medium size jars (**Fig. 02.6.2**). On the other hand, the decoration of large jars is different. There are grooves or short, thick, diagonal lines made by a finger. They are found on the rim of the mouths and on the necks and middle sections of the bodies in the form of a rope pattern (**Fig. 02.7**). The bases both of decorated and of undecorated vessels are flat.

The earlier versions of this pottery, which was excavated in the early and late phases of the third architectural level, were found in a building representing the fourth architectural level (**Fig. 02.3**). This building was destroyed by a violent fire. The pottery which was discovered in the east and south rooms of this building was again composed of jars, bowls, jugs and flasks. Besides the cups of this period (**Fig. 02.8.1**), very large, deep bowls can be seen together with bowls which have three or more horizontal grooves under their rims (**Fig. 02.8.2**). The same kind of decoration is also seen on other vessel types (**Fig. 02.8.3**). Two of the deep bowls have three feet in the form of strap handles (**Fig. 02.8.4**). One of these bowls was found with its lid (**Fig. 02.8.5**).

The vessels of the fourth level also have two handles, a spout and a large mouth (**Fig. 02.8.6**). There are, however, some examples which have necks and strap handles but do not have a spout (**Fig. 02.9.1**). Jugs have trefoil mouths (**Fig. 02.9.2**) whereas the flasks have one handle and symmetrical bodies (**Fig. 02.9.3**). The painted fragment, which has a cylindrical shape and a handle, probably belongs to a flask (**Fig. 02.10.1**). The technique of the *in situ* vessels, excavated in the C trench on the slopes of the mound, clearly demonstrate that they belong to the Early Iron Age. The general characteristics of the fourth level pottery are: single or double handles, no necks, flat bottoms (**Figs. 02.10.2** and **3**), wheel-made, poorly slipped and burnished, grit tempered and not well-fired.

The pottery that has been described so far was the local pottery of Köşkerbaba and the vicinity but a few imported pieces were also unearthed in the large storeroom of the third level building. The first group is represented by a piece which is decorated with paint in concentric circles and wheel-shaped motifs (**Fig. 02.11.1**). The decoration on this piece is similar to the decoration of the pottery which is commonly seen in Central Anatolia and which is called Phrygian.

The second group is composed of bowls whose rims are decorated with triangles ('triangle ware'). The area between the rim and body is also decorated with a stitch pattern (**Fig. 02.11.2**). Similar pieces were discovered by the American archaeologist, Kirsopp Lake, who in 1937 and 1938 carried out excavations on Van Kale, the capital of the Urartian Kingdom. This material was published by von der Osten (1952; 1953).

The pottery discovered in fragments and later restored on paper demonstrates the similarity of the third type with the Assyrian 'palace pottery' excavated in Fort Shalmaneser and at Nimrud. The similarities are the advanced level of technology and the groove decoration on the rims and bottom parts (**Fig. 02.11.3**). A fragment from the bottom of a vessel, which was made in a grit tempered, highly burnished, greenish-beige slipped and well-fired clay, should also be of Assyrian or North Syrian origin since the rounded lower section was finished in the manner of 'dimpled ware'.

On the other hand, the round-based, double handled pitcher which is decorated with red, horizontal lines executed in groups, seems to be eastern Mediterranean or Cypriot in origin (**Fig. 02.11.4**). Today the mouth and handles of the pitcher are missing. This vessel, which has lost its original colour after the heavy fire, is wheel-made, grit tempered, beige slipped and highly burnished.

We conclude that the third architectural level at Köşkerbaba Höyük extended into the 6th century BC on the grounds that (1) the pitcher (**Fig. 02.11.4**) looks like the pottery of the Geometric period seen on the Mediterranean coast, (2) there is the sherd from Central Anatolia which is decorated with concentric circles, (3) the bowl sherds the rims of which are decorated with triangles belong to a type of pottery very common in northwest Iran and thought to be the product of the Median culture and (4) there are sherds which are decorated with grooves and which belong to the Assyrian 'palace pottery' group.

The similarities of the three bowls with feet in the shape of strap handles, excavated in the fourth architectural level, are also seen at the end of the Middle Bronze Age and at the beginning of the Iron Age in Palestine. Hence we can say that the Iron Age culture at Köşkerbaba Höyük continues down to the beginning of the First Millennium BC. The same kind of bowls are also seen at Tel-Fakheriye in Northern Syria and at Çatal Höyük in the Amuk plain. This demonstrates that they were imported to Köşkerbaba from the south.

With this paper I have aimed to evaluate and then to introduce to the archaeological world the pottery of Köşkerbaba Höyük from the fourth and third architectural levels. As a result of this evaluation, I have found that the Iron Age at Köşkerbaba Höyük was part of the culture seen in the Malatya-Elazığ-Keban region. The storerooms of the third architectural level are furnished with jars. It is, therefore, easy to understand that Köşkerbaba had been an Urartian fortified site. From the İzoli rock-inscription near Köşkerbaba Höyük we know of the presence of Urartians in the region. Except for the 'triangle ware', however, which is defined as the product of Median culture, there is no other example that can be interpreted as Urartian palace pottery among the pottery of this period at Köşkerbaba. The pitcher with trefoil mouth, the grooved pots with deeply outsplayed rims and the large jars which were discovered in the storerooms are the local pottery of Elazığ-Malatya region. The flasks excavated in large numbers also belong to the same group. They can be regarded as the continuation of Second Millennium examples since larger versions of these pots, dating again to the Second Millennium BC, are found in fragments in the same region, for example, at Arslantepe and in the Hittite levels of Pirot Höyük, which is situated 10 km south of Köşkerbaba and which is now under water. Some of the shapes of the Iron Age pottery of Köşkerbaba Höyük are the continuation of the Second Millennium pottery. Horizontal groove decoration below the rim, however, is a new characteristic seen in the Elazığ-Malatya region. It begins at least from the early First Millennium BC.

Catalogue

Fig. 02.4.1 Bowl (Kb. A-37).
Reddish cream slipped and burnished. Wheel made.
Diameter 0.16, wall thickness 0.005

Fig. 02.4.2 Two handled, spouted pot (Kb. 80-57).
Reddish cream slipped and burnished. Wheel made.
Height 0.25, width 0.35, wall thickness 0.009

Fig. 02.4.3 Trefoil rim pitcher (Kb. 80-35).
Reddish brown slipped and poorly burnished. Wheel made.
Height 0.19, width 0.18, wall thickness 0.009

Fig. 02.5.1 One handled, symmetrical flask (Kb. 80-22).
Reddish cream slipped and burnished. Wheel made.
Height 0.32, width 0.25, wall thickness 0.009

Fig. 02.5.2 One handled, asymmetrical flask (Kb. 80-166).
Light brown slipped and burnished. Wheel made.
Height 0.26, width 0.31, wall thickness 0.012

Fig. 02.6.1 Jar of medium size (Kb. 80-51).
Reddish cream slipped and poorly burnished. Wheel made.
Height 0.40, width 0.36, wall thickness 0.012

Fig. 02.6.2 Two handled jar of medium size (Kb. 80-53).
Reddish cream slipped and burnished. Wheel made.
On the shoulder between two handles, the jar is decorated with hollow lines forming geometric patterns.
Height 0.50, width 0.40, wall thickness 0.01

Fig. 02.6.3 Two handled large jar (Kb. 80-165).
Cream slipped and burnished. Wheel made.
The mouth and the middle part of the body decorated with red bands.
Height 0.32, width 0.27, wall thickness 0.01

Fig. 02.6.4 One handled, asymmetrical flask (Kb. 79-1).
Reddish cream slipped and burnished. Wheel made.
The handeless side of the body is decorated with a red band and lines forming geometric patterns.
Neck and handle broken. Height 0.19, width 0.18, wall thickness 0.009

Fig. 02.7.1 One handled, asymmetrical flask (Kb. 80-30)
Reddish cream slipped and burnished. Wheel made.
The handeless side of the body is decorated with a pattern formed by two rings of diagonally incised slashes enclosed within three concentric circles on the outside and two concentric lines on the inside.
Height 0.34, width 0.20, wall thickness 0.007

Fig. 02.7.2 Jar (Kb. 81-36).
Cream slipped and burnished. Wheel made.

The relief band on the exterior of the mouth and on the body is decorated with incised lines. Below the rim at regular intervals there is a pattern formed by a line of vertical finger-imprints.
Height 0.87, width 0.65, wall thickness 0.016

Fig. 02.8.1 Goblet (Kb. 82-23).
Cream slipped and burnished. Wheel made.
Height 0.05, width 0.04, wall thickness 0.005

Fig. 02.8.2 Bowl (Kb. A-1190).
Cream slipped and burnished. Wheel made.
Upper part of the body decorated with grooves.
Diameter 0.23, wall thickness 0.01

Fig. 02.8.3 Two handled pot (Kb. A-1390).
Cream slipped and burnished. Wheel made.
The lower part of the mouth is decorated with irregular grooves.
Diameter 0.17, wall thickness 0.01

Fig. 02.8.4 Tripod bowl (Kb. 82-16).
Light brown slipped and burnished. Wheel made.
Height 0.12, width 0.22, wall thickness 0.01

Fig. 02.8.5 One handled lid (Kb. 81-38).
Cream slipped and burnished. Hand made.
Around the handle there is a red pattern of two concentric circles. The edge is also red painted.
Diameter 0.25, wall thickness 0.02

Fig. 02.8.6 Two handled spouted jar (Kb. 84-9).
Cream slipped and burnished. Hand made.
Height 0.38, width 0.41, wall thickness 0.012

Fig. 02.9.1 Two handled pot (Kb. 81-35).
Reddish brown slipped and burnished. Wheel made.
Height 0.18, width 0.17, wall thickness 0.006

Fig. 02.9.2 Trefoil rim pitcher (Kb. 81-32).
Light red slipped and burnished. Wheel made.
Height 0.31, width 0.27, wall thickness 0.007

Fig. 02.9.3 One handled symmetrical flask (Kb. 82-15).
Cream slipped and burnished. Wheel made.
Height 0.33, width 0.26, wall thickness 0.011

Fig. 02.10.1 Fragment of a flask (Kb. A-1526).
Reddish cream slipped and burnished. Wheel made.
Decorated with brown painted geometric patterns.
Wall thickness 0.008

Fig. 02.10.2 Two handled pot (Kb. 81-11).
Blackish gray slipped and burnished. Wheel made.
Height 0.21, width 0.26, wall thickness 0.011

Fig. 02.10.3 One handled pot (Kb. 81-12).
Reddish gray slipped and poorly burnished. Wheel made.
Height 0.17, width 0.20, wall thickness 0.012

Fig. 02.11.1 Fragment of a bowl (Kb. A-873).
Cream slipped and burnished. Wheel made.
Decorated with a pattern of concentric circles and lines, painted black on a reddish cream ground.
Wall thickness 0.01

Fig. 02.11.2 Fragment of a bowl rim (Kb. A-354).
Cream slipped and well burnished. Wheel made.
Interior of the rim decorated with a pattern of red painted triangles above a line of continuous loops.
Diameter 0.20, wall thickness 0.008

Fig. 02.11.3 Fragment of a bowl (Kb. A-491, 493).
Greenish cream slipped and burnished. Wheel made.
The exterior of the body decorated with a pattern of deep grooves in two groups, one above the base, the other below the neck.
Diameter 0.27, wall thickness 0.008

Fig. 02.11.4 Two handled pitcher (Kb. 80-37).
Light cream slipped and burnished. Wheel made.
Decorated with a pattern horizontal red painted lines in five groups.
Rim and two handles broken.
Height 0.19, wall thickness 0.006

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1953 Die urartische Töpferei aus Van und die Möglichkeiten ihrer Einordnung in die anatolische Keramik 2. *Orientalia* 22: 329-354.

Pl. 02.1 General view of site from E.

Pl. 02.2 Air-photograph of IA levels.

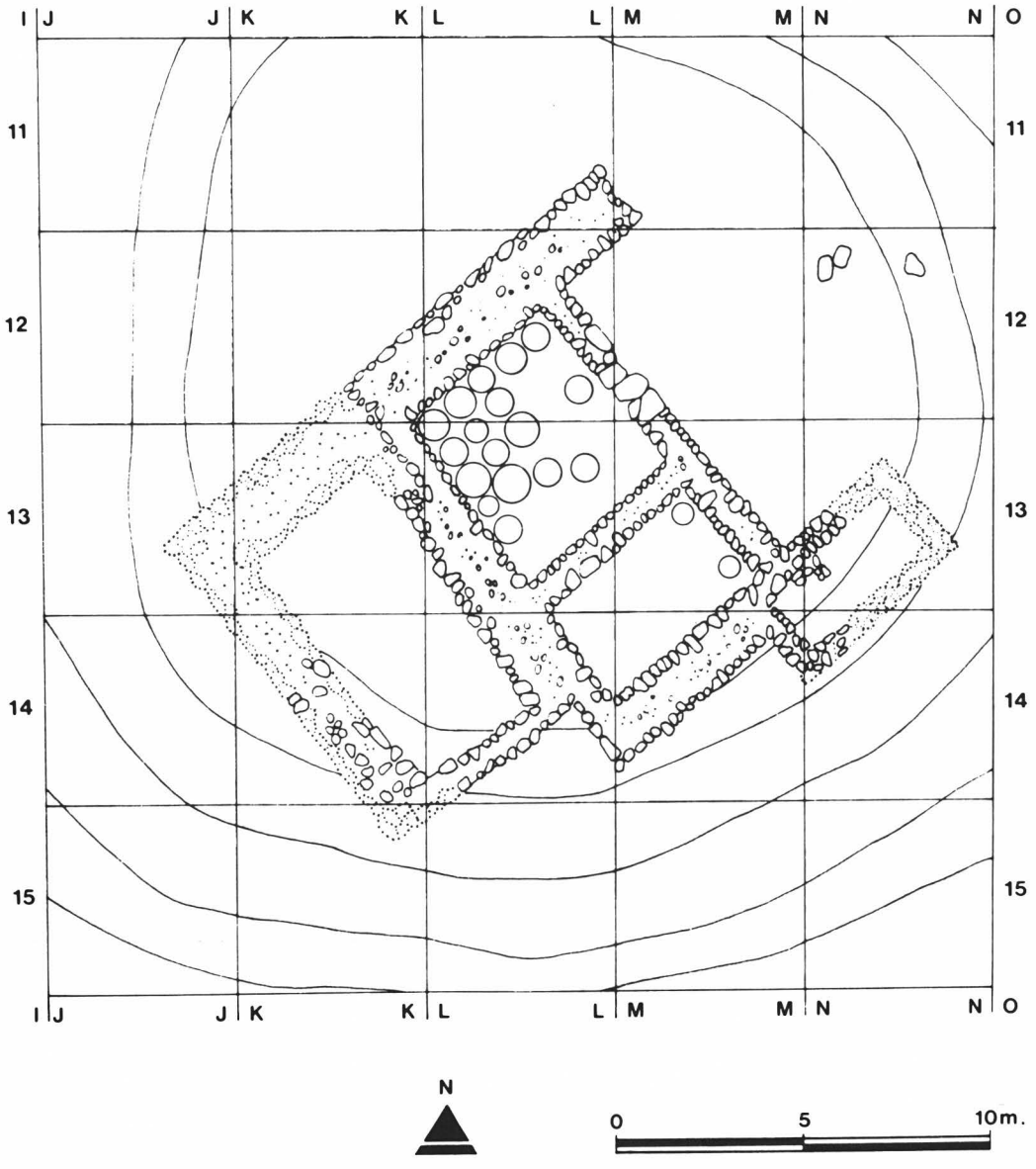

Fig. 02.1 Plan of Level 3, late phase. Scale 1:200.

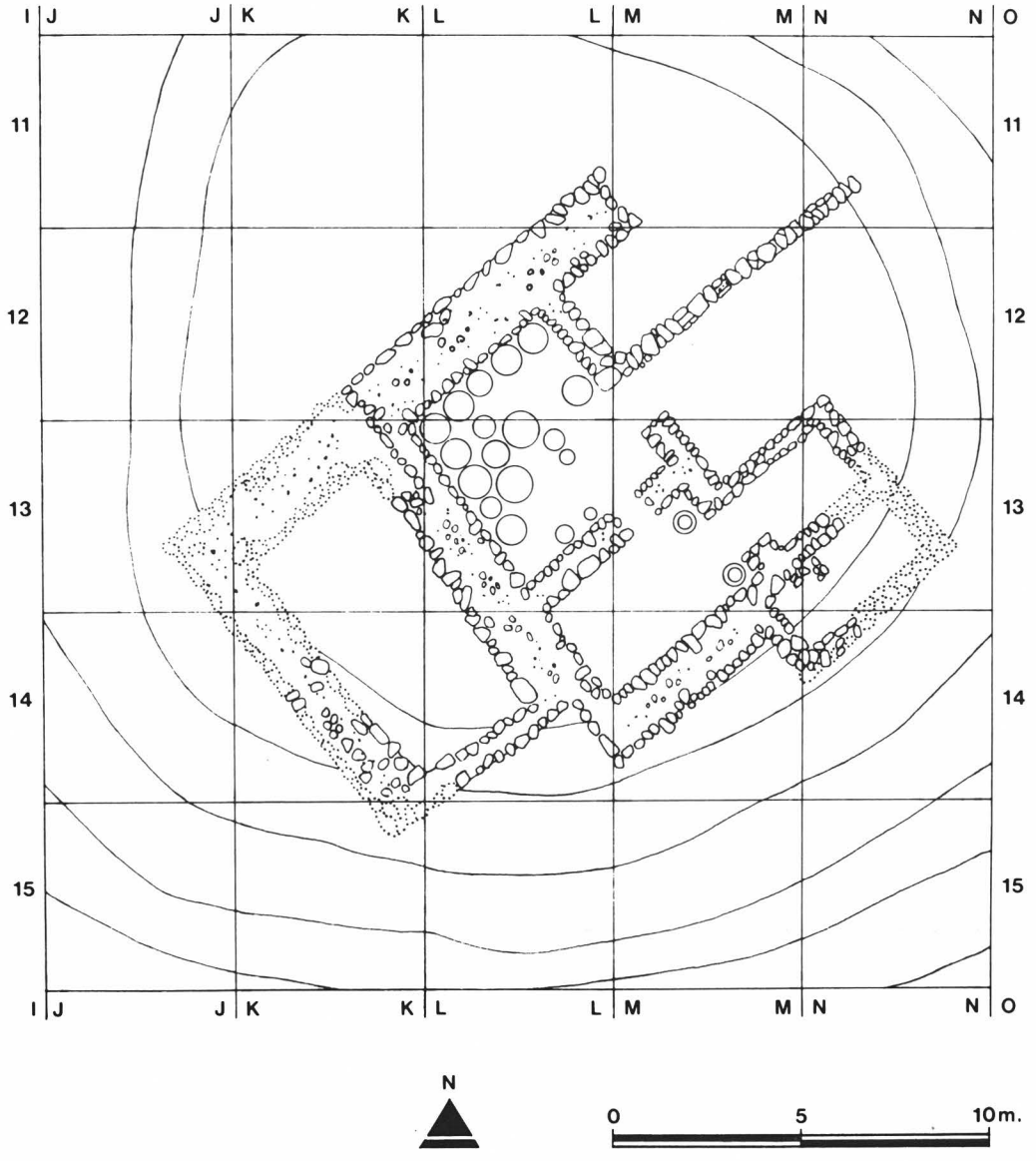

Fig. 02.2 Plan of Level 3, early phase. Scale 1:200.

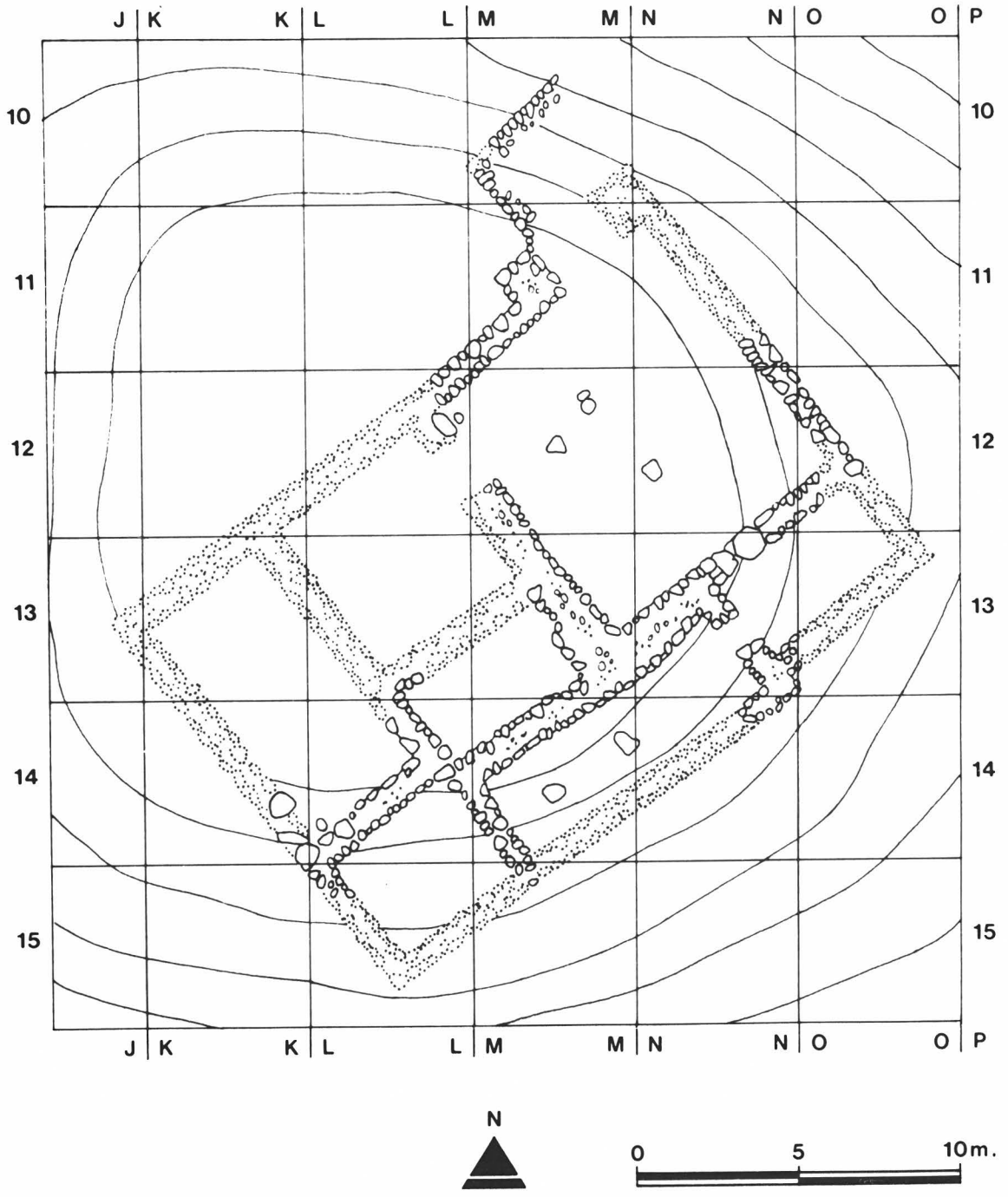

Fig. 02.3 Plan of Level 4. Scale 1:200.

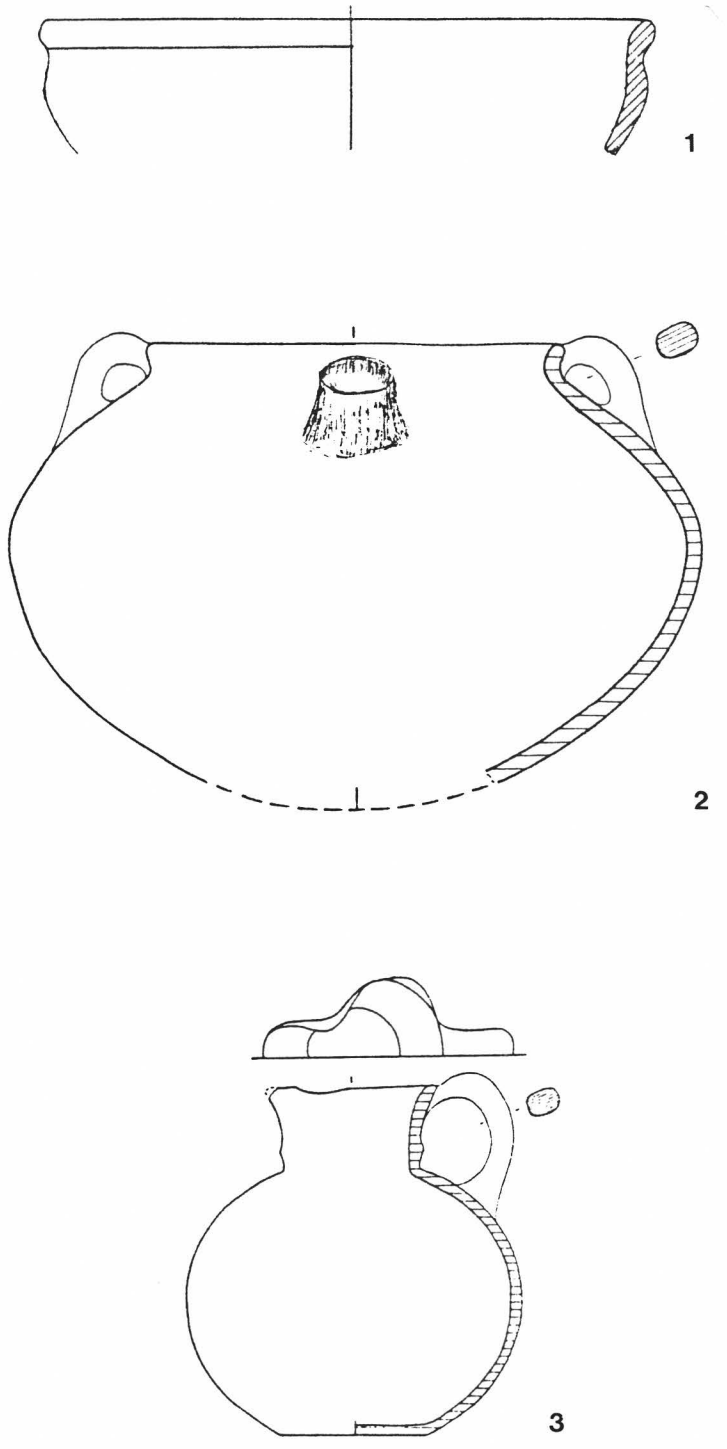

Fig. 02.4 Pottery from Level 3. Scale 1:2 (no. 1), 1:4 (nos. 2, 3).

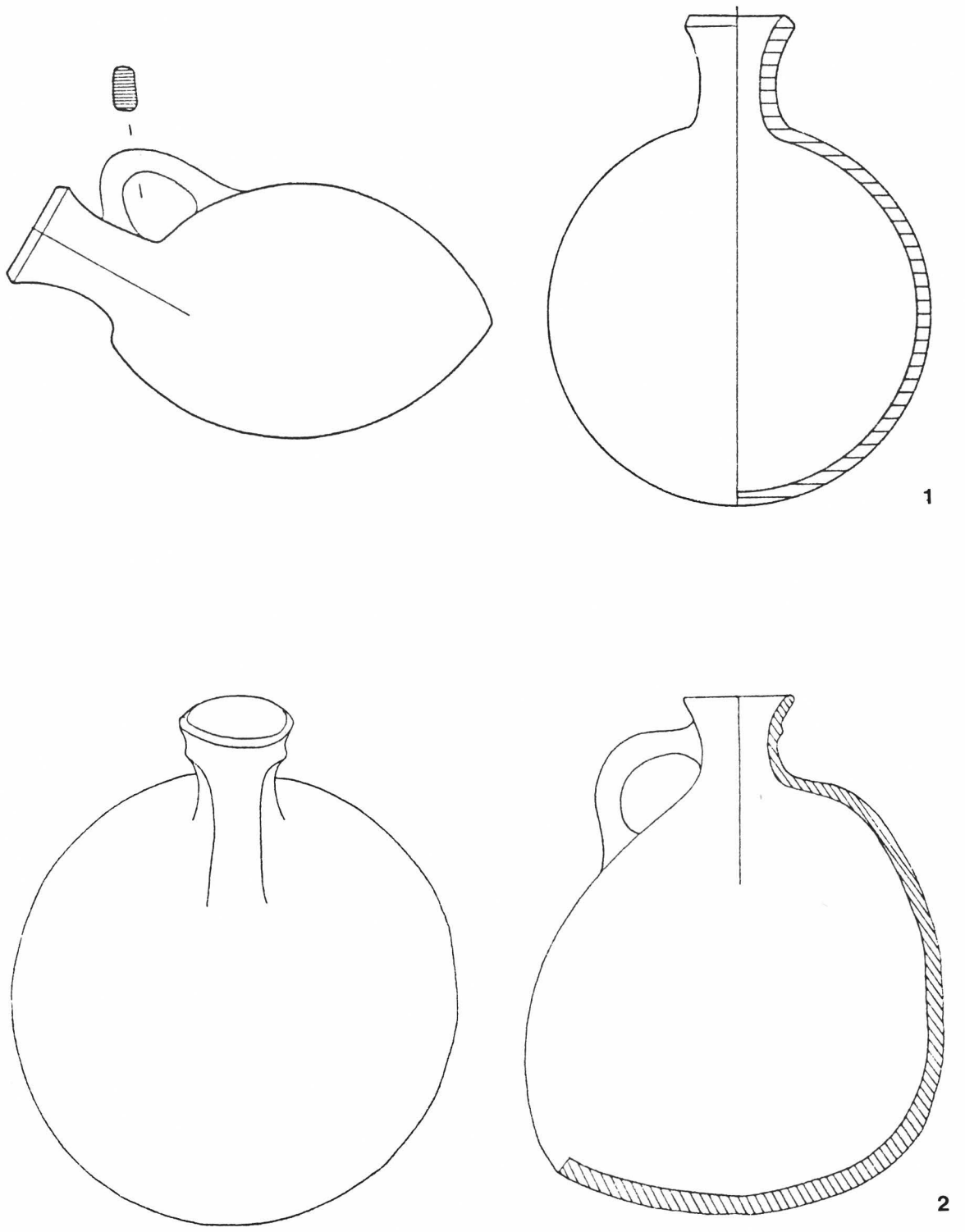

Fig. 02.5 Pottery from Level 3. Scale 1:4.

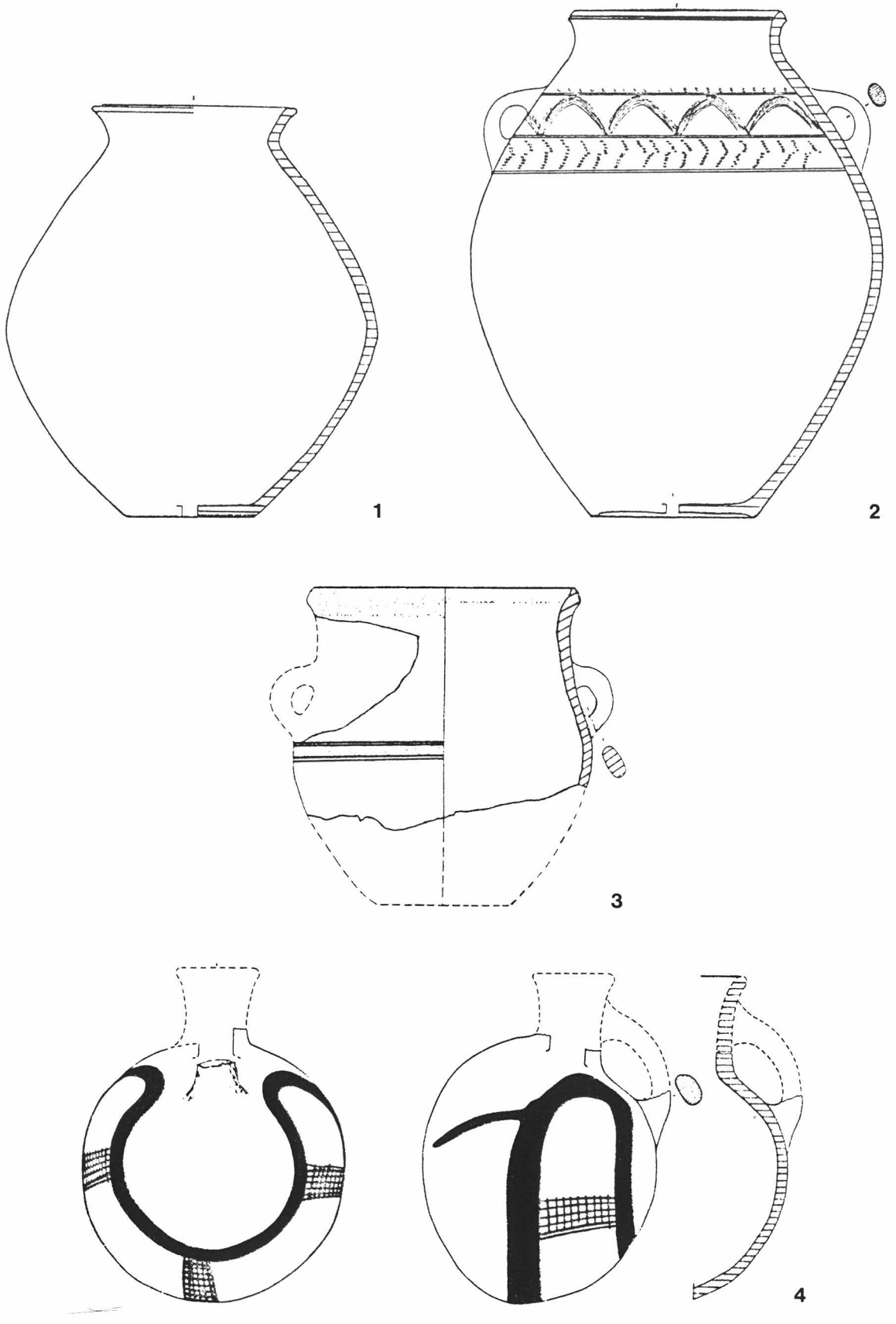

Fig. 02.6 Pottery from Level 3. Scale *c.* 1:6 (nos. 1-3), 1:4 (no. 4).

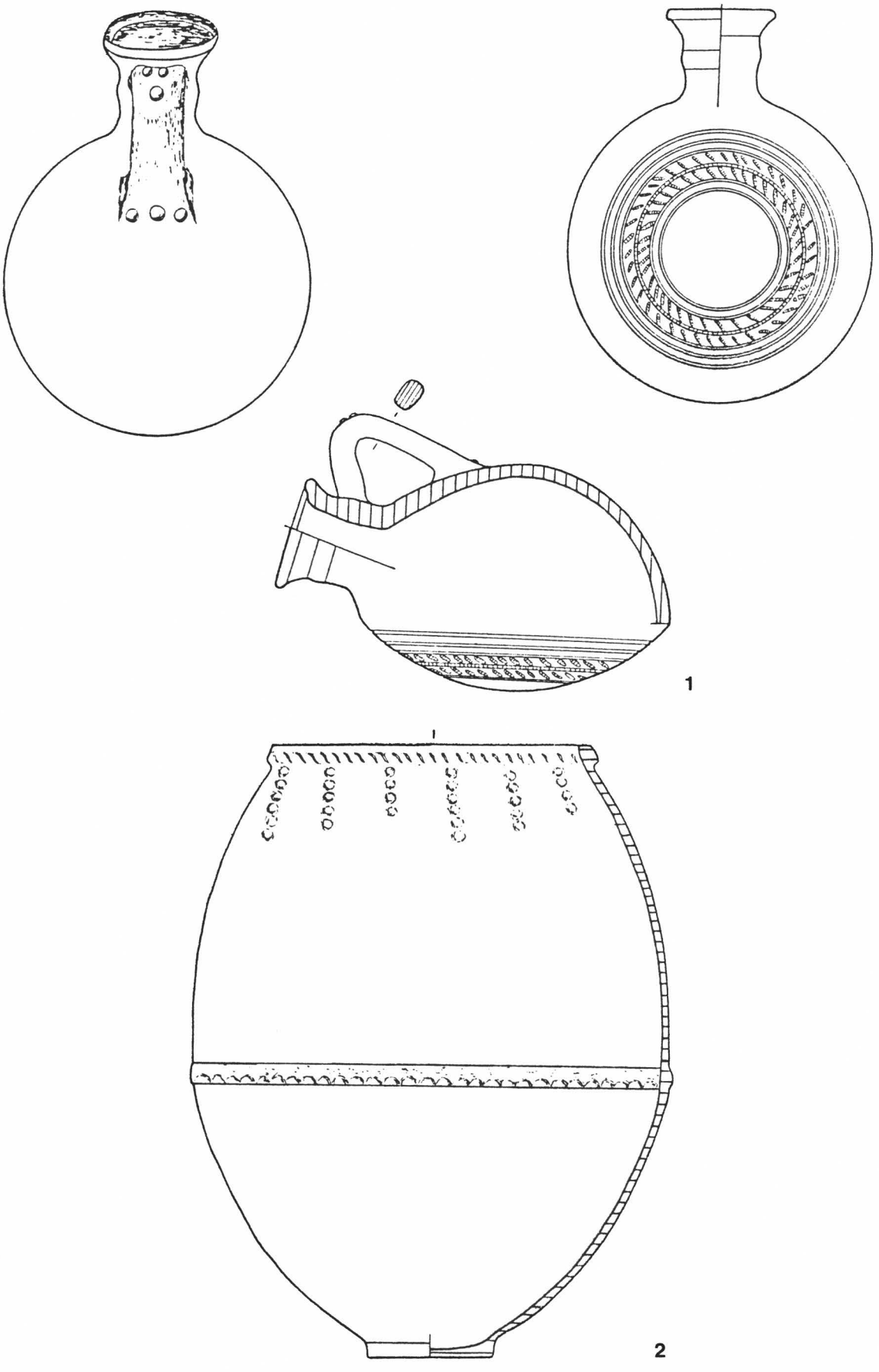

Fig. 02.7 Pottery from Level 3. Scale 1:4 (no. 1), 1:10 (no. 2).

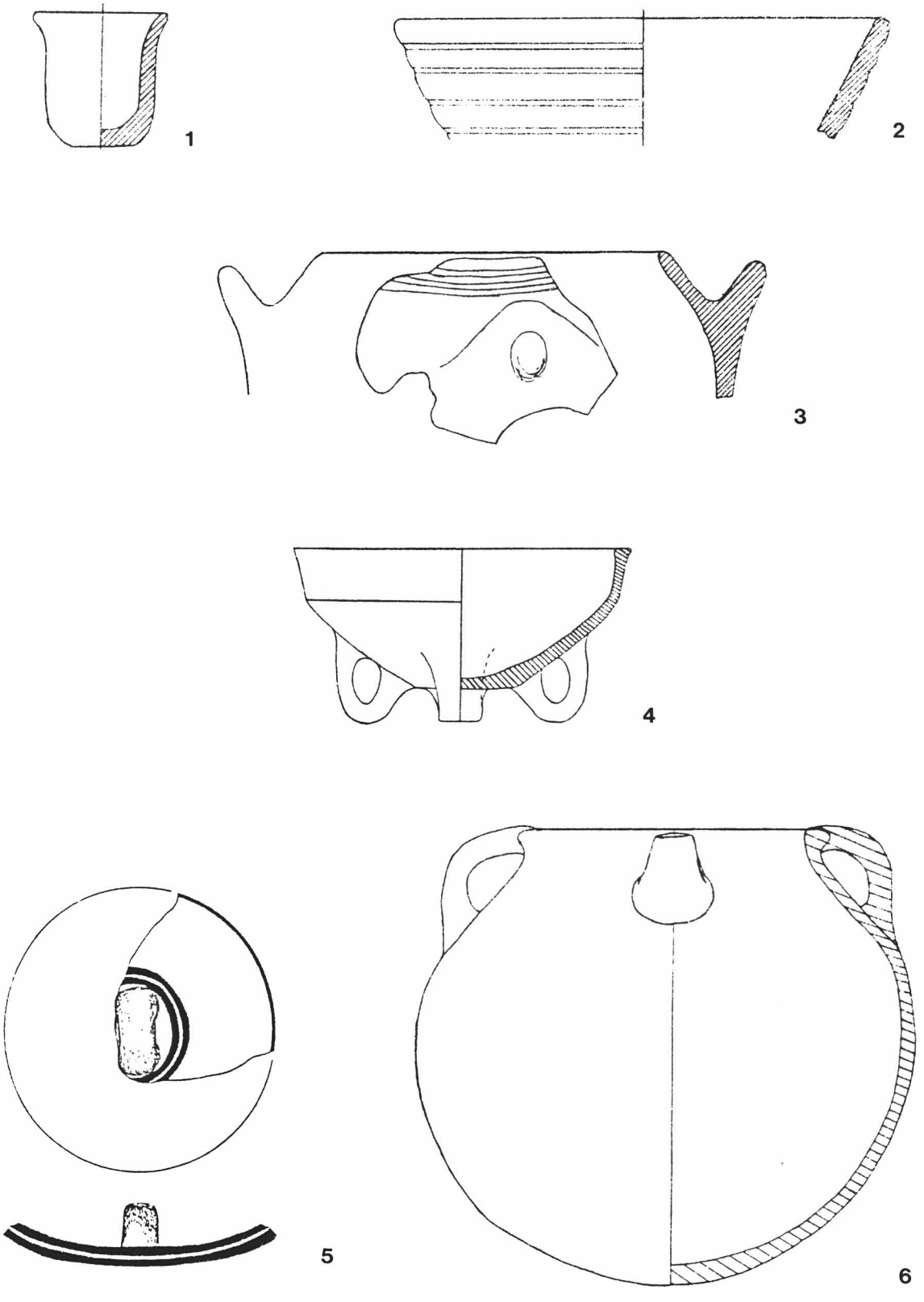

Fig. 02.8 Pottery from Level 3. Scale *c.* 1:2 (no. 1), *c.* 1:3 (nos. 2, 3), 1:4 (nos. 4, 6), 1:6 (no. 5).

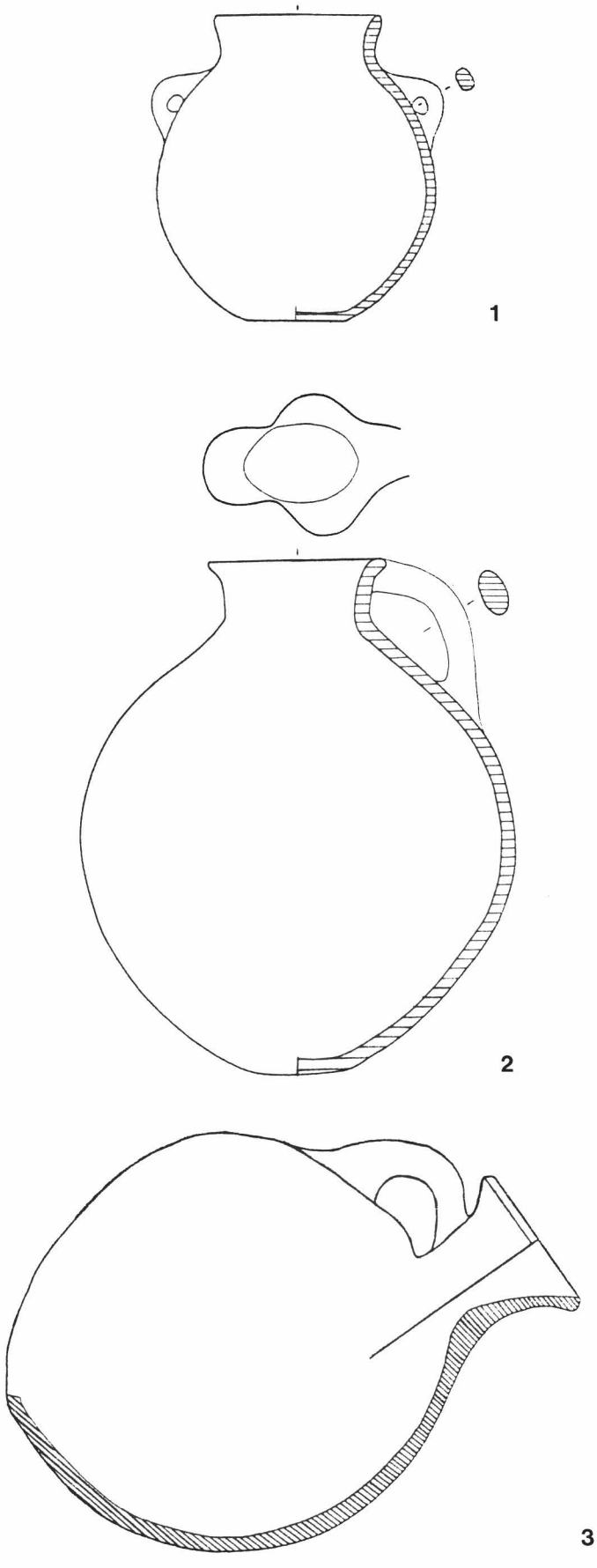

Fig. 02.9 Pottery from Level 4. Scale 1:4.

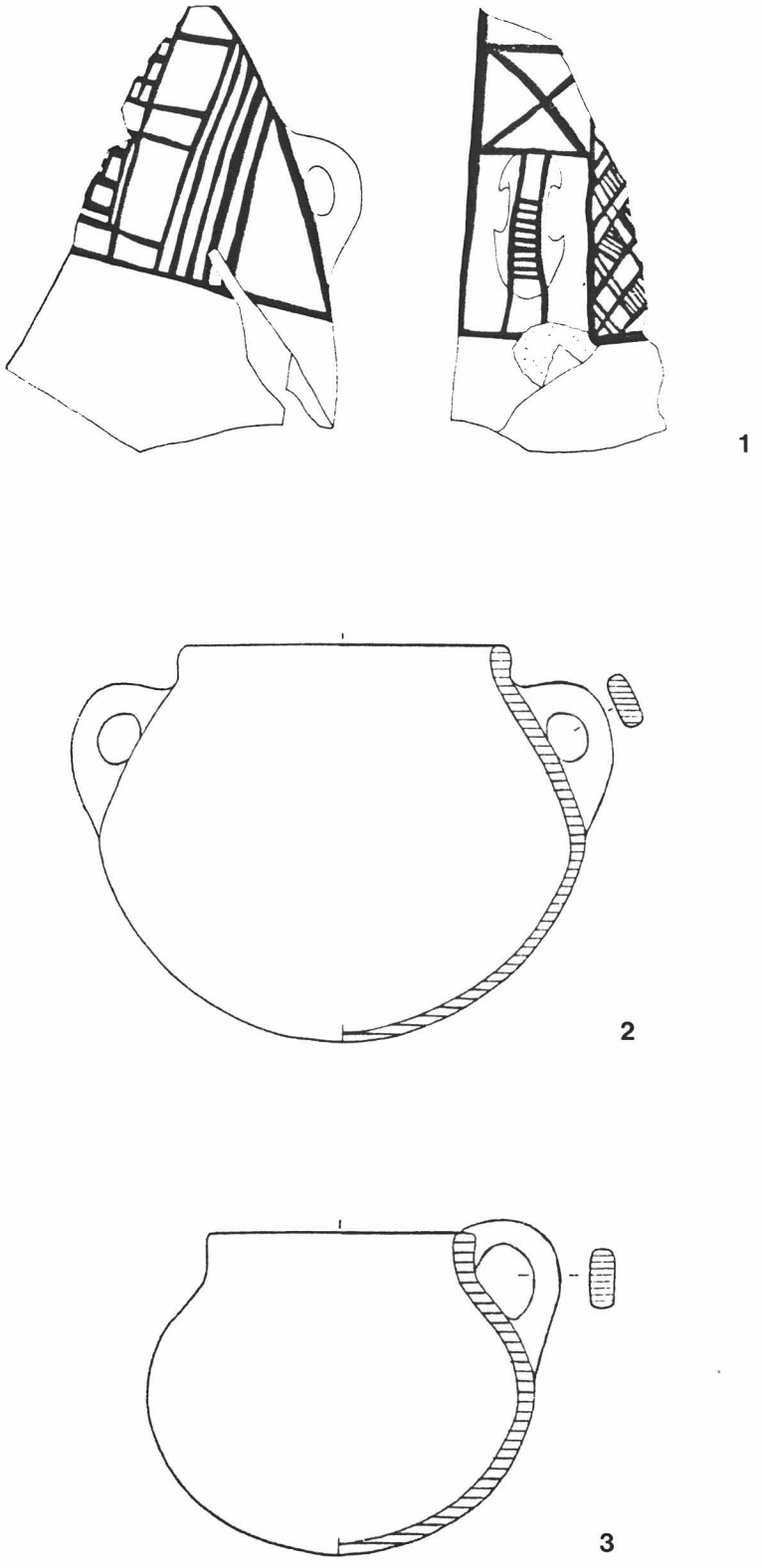

Fig. 02.10 Pottery from Level 4. Scale 1:4 (nos. 2, 3).

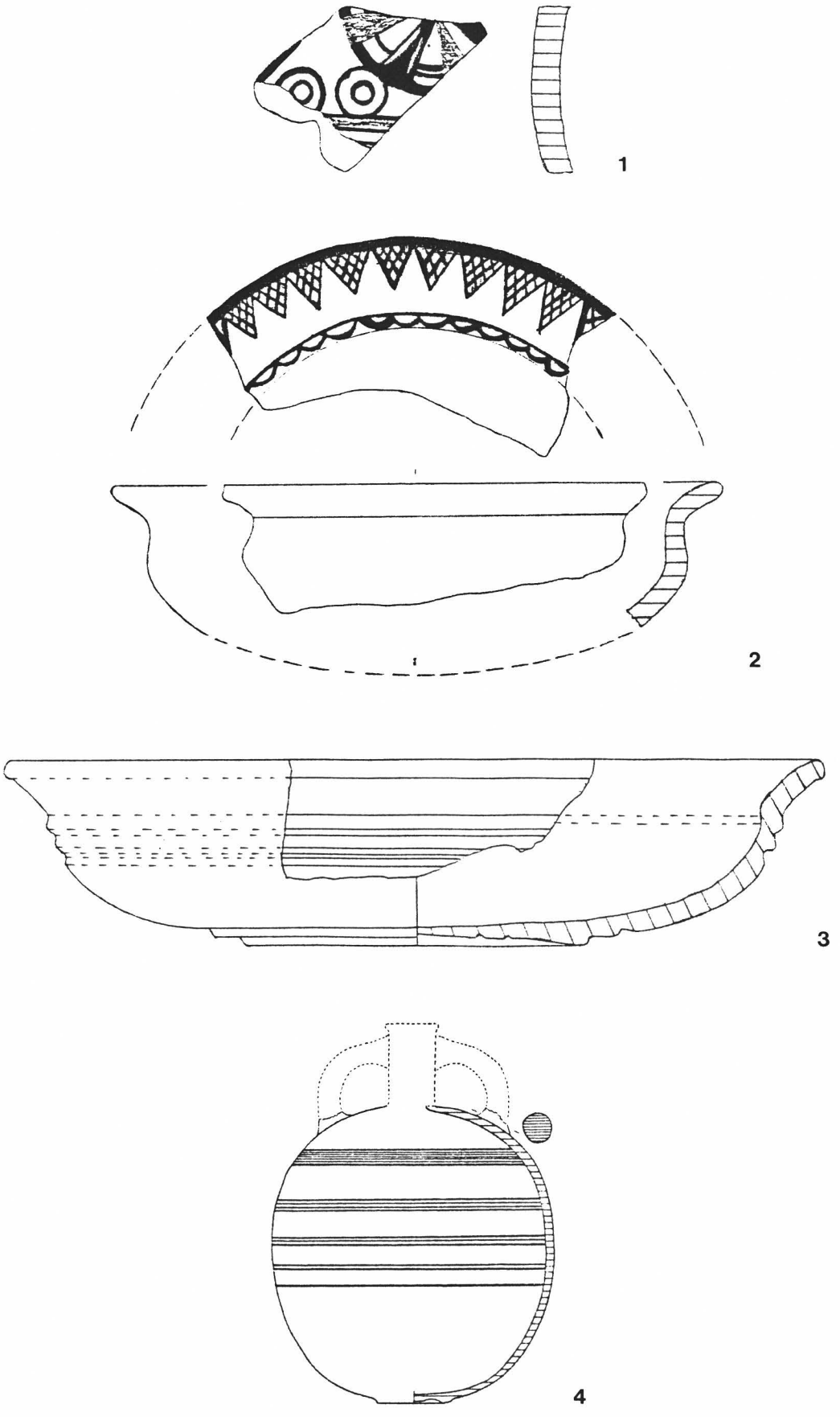

Fig. 02.11 Pottery from Level 4. Scale 1:2 (nos. 1-3), 1:5 (no. 4).

03. THE EARLY IRON AGE AT DİLKAYA

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Work in the Dilkaya cemetery began in 1984 and continued into 1986. The Iron Age graves in the Dilkaya necropolis fall into two groups: (1) inhumation burials and (2) cremation burials. There are two sub-categories of inhumation burials: (1) stone-built cist-graves and (2) stone-built chamber-graves. Not included here are the 150 'sand-graves'.

Of the first sub-category of inhumation graves there is only one example and only two examples of chamber-grave. Cremation burial had taken place in the second chamber-grave. Apart from the latter, cremation burial is recorded in a cist-grave and in a stone-built chamber-grave.

Cremation burial is more frequently discovered in urns. Six urns had been discovered up to 1988, all of the Middle Iron Age.

There are no close parallels for the cist-graves in the region. Dating has been suggested on the basis of the grave-goods, most probably the end of the Early Iron Age, i.e. to the 11th and 10th centuries BC.

The Dilkaya mound is situated in the Dilkaya village of Edremit district, province of Van. It is situated on the lake shore, 34 km SW of Van. The excavations carried out since 1984 have demonstrated that the mound was inhabited since the beginning of the Third Millennium BC (Çilingiroğlu 1985: 153; 1986: 81; 1987: 229). On the other hand, excavations carried out in the cemetery which was located 200 m north of the mound and which was spread over a large area brought light to different types of burials. The Dilkaya cemetery was especially interesting since no other cemetery dating to the Early Bronze Age has been excavated in the region of Lake Van.

Most of the remains and finds were unearthed in the cemetery rather than on the mound. The work carried out until 1986 produced some small finds dating to the Early and Middle Iron Ages but did not reveal the architectural levels to which they belonged (1). It is very important to find *in situ* Iron Age finds since only then is it possible to give an accurate interpretation and chronology. The grave goods, which were brought to nearly all types of burials, are the main criteria for dating.

The work in the cemetery was started in 1984 in a one-by-four metre trial trench (Çilingiroğlu 1985: 153). This trench was covered by a sand layer, 1.60 m deep, which did not produce any finds. The first grave to be recorded in the Dilkaya cemetery was found at a depth of 1.70 m and was covered by a stone block. The work carried out in 1984 and in later years showed that the cemetery covers a large area, 300 x 100 m minimum. Only a portion of this area, 20 x 50 m, which was completely covered with sand, was opened.

The Iron Age graves, found in the Dilkaya necropolis, are divided firstly into two groups according to their burial types. Then the architecture of the graves is taken into consideration: (1) inhumation burials and (2) cremation burials.

The inhumation burials are again divided into two groups. The first group consists of cist-graves whereas the second group consists of two stone-built chamber-graves. The 150 graves which we call 'sand graves' are not included in this paper as they are dated to the Middle Iron Age.

The only example of a cist-grave burial was unearthed in 1984 (Çilingiroğlu 1985: 153). This grave (**Fig. 03.1**), which had been looted in antiquity, was orientated north-south. It measured 0.70 x 1.10 m and was nearly rectangular in shape. There were two stone lids and a vertical slab on its short, north side. This vertical slab was higher than the level of the grave. There were eight skeletons in the grave lying next to each other, with their heads to the north-east. They were found pushed to the rear (southern) part of the grave. This situation suggested two possibilities: 1) that they might had been pushed towards the back in order to fit into this small grave, or 2) the skeletons could have been put into the grave at different periods. New burials were placed in the grave by raising this vertical slab in the front of the grave. The skeletons in the front (northern) part of the grave were in good condition. They were found in the crouched ('hocker') position. The only grave good from the first grave was an iron, hair pin.

The second type of inhumation-graves are the stone-built chamber-graves. At Dilkaya only two chamber-graves were discovered. The 1985 work in the cemetery brought to light a stone lid measuring 3.20 x 1.60 m. The thickness of the lid was 0.30 m (Çilingiroğlu 1986: 84). When the lid was moved, we were faced with a chamber whose walls survived to a depth of 1.65 m. This chamber room (no. 1) was rectangular and measured 4.60 x 2.40 m. There was a semi-circular dromos on its west side (**Fig. 03.2**). On this west side there were also a door and two steps leading into the chamber. The door was closed with a vertical slab. It is clear that this stone was moved in order to enter the chamber for the burial of new bodies. This interpretation was proved by the existence of 11 skeletons in the chamber. Their ages were between 5 and 35 (2). The skeletons were found damaged and were not in any specific orientation. Like the skeletons, the pottery in the graves were also found upside down and scattered. Hence it is believed that the grave had been entered and looted before we found it. Six complete vessels were unearthed from this grave. They included vessels with and without handles, jars, bowls with sharp profiles and bowls with handles. As will be mentioned later, they represent the late phases of the Early Iron Age (Çilingiroğlu 1986: 85).

The second stone-built chamber-grave was found in 1986 in the north section of the cemetery (Çilingiroğlu 1987: 233). It was covered with slabs measuring 1.90 x 0.95 m. The walls were 0.75 m thick and 1.70 m high (**Fig. 03.3**). Like the first chamber-grave, the entrance was from the west but it did not have a dromos. In the debris of this tomb, which had been looted, there were skull fragments belonging to a minimum of 30 people. A number of finds were left behind in the chamber-grave after looting. These included two bronze bracelets with snake-head finials, the end of an iron sceptre and various beads and sherds. These were important criteria for dating. The Urartian fibula, which was found next to the tomb, must have been a grave gift. The most interesting finds in this chamber-grave (no. 2) were the burnt bones. This showed us that cremation had also taken place in these chamber-graves.

There were three types of cremation burial in the Dilkaya cemetery. Apart from the second chamber-grave, cremation was also observed in the cist-graves and in the urns. There was a stone paved area at the south end of the 0.70 m thick wall which was south of the cist-grave (no. 1). The cist-grave excavated in this area was the first cremation burial to be found at Dilkaya (**Fig. 03.4**). The inner dimensions

of the second cist-grave were 0.40 x 0.44 m. It was covered with a stone lid measuring 0.44 x 0.48 m. The only finds from this grave, in which there was no skeleton, were two burnt bones, a set of children's teeth and a necklace made of various beads and stones.

The second cremation grave was found five metres north-east of the large chamber-grave (**Pl. 03.1**). This stone-built chamber-grave, 1.10 x 0.65 m, was made of small stones. It was covered by two stone lids. There were several burnt bones and a small urn in the grave. There was a special place for cremation immediately next to the grave (Çilingiroğlu 1987: 233, Fig. 16). This showed us that cremation had taken place in the cemetery. Burnt bones were also found in the one metre thick, extensive burnt deposit where the cremations had taken place.

Another type of cremation burial are the urns. Six urns had been discovered in the cemetery up to 1988. The urns which had been buried in the soil together with the grave goods belonged to the Middle Iron Age (Urartian period) (3).

It is very difficult to find parallels for the Dilkaya graves in the region. At Gavurkale, there are some parallels for the cist-graves at Dilkaya but the only similarity between them are the plans. Those at Gavurkale are of very simple form (Sevin 1986: 332) and the dimensions, the number of the skeletons unearthed and their masonry are all very different. There is also some similarity in plan between the Gavurkale grave which has a dromos and the chamber-graves of Dilkaya (Sevin 1986: Pl. 5, Fig 14). The Gavurkale graves, however, are dated to periods later than the Dilkaya burials. Another cist-grave, which has an urn, was excavated at Liç. This grave, whose dimensions and urn recall Dilkaya, is dated to the Middle Iron Age (Öğun 1978: 672, Fig. 12).

The dating of the Van-Dilkaya graves, therefore, has been made on the basis of the finds rather than on a comparision with parallels in the region (**Fig. 03.5**). These graves produced bowls with grooved and inverted rims, jugs and jars with one handle, bowls with sharp profiles and bowls with handles. These finds which were very common at the end of the Early Iron Age are diagnostic for the Dilkaya graves. The iron hair pin found in the cist-grave is another important, chronological item. Grave goods made of iron were put into graves during the Early Iron Age. Fibulae similar to the Dilkaya find, which is in the shape of an inverted cone, have also been discovered in the Ernis-Evditepe cemetery (Sevin 1987: 39, Fig. 5/5).

The excavations in the Dilkaya cemetery, which have been carried out since 1984, have demonstrated the presence of hundreds of graves (**Pl. 03.2**). These graves, which have different architectural styles, represent different periods and cultures from the beginning of the Early Iron Age. The earliest of these graves has been examined in this paper. I think that they should be dated to the end of the Early Iron Age, that is to say, to the 11th and 10th centuries BC.

Notes

1. Excavations carried out in 1988 brought to light Middle Iron Age architectural levels in the N7 and M7 trenches at the top of the mound.
2. All the skeletons unearthed in the Dilkaya cemetery have been examined by Doç. Dr. Erksin Güleç of Ankara University.

3. Information on the Urartian urns will be presented during the 9th Symposium of Archaeology and Archeometry.

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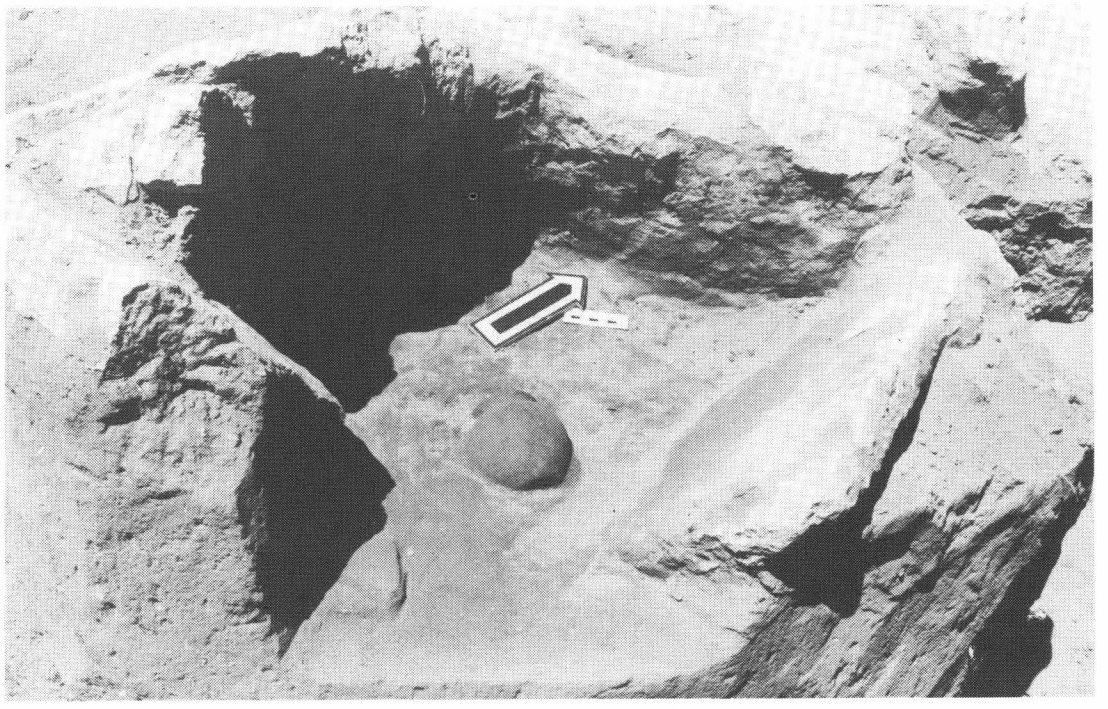
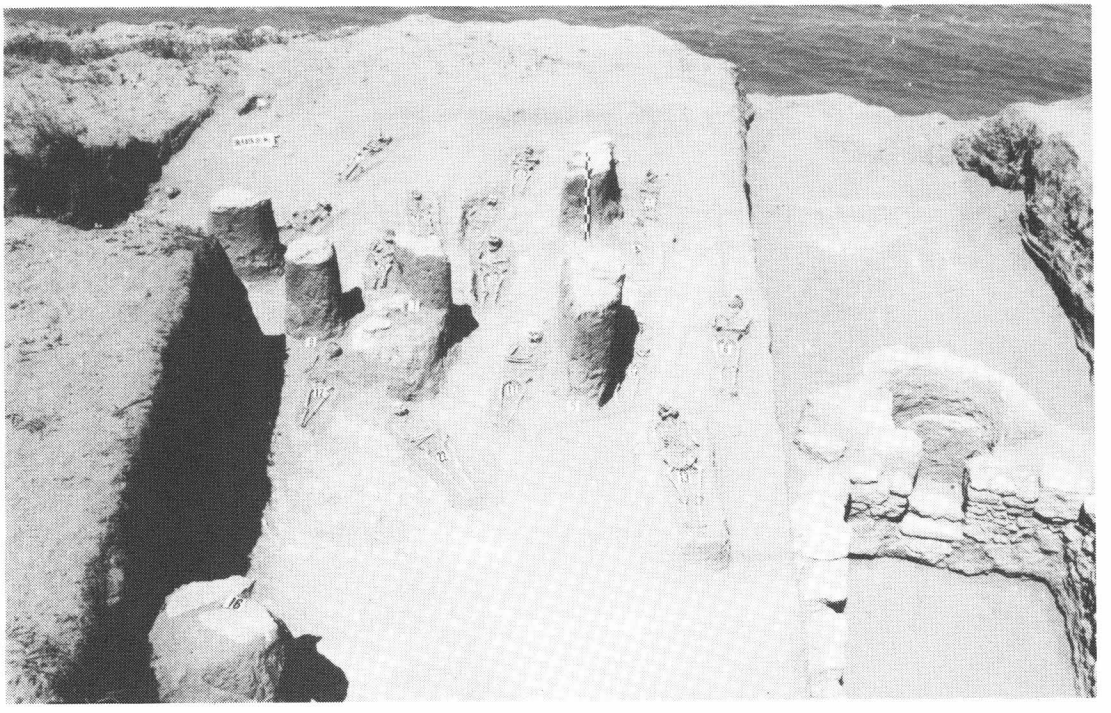


Pl. 03.1 Dilkaya 1986: Cist-grave no. 2 (cremation burial).



Pl. 03.2 Dilkaya 1986: Area of cemetery, inhumations and chamber-grave no. 1.

Fig. 03.1 Dilkaya 1984: Cist-grave no. 1.
Scale 1:50.

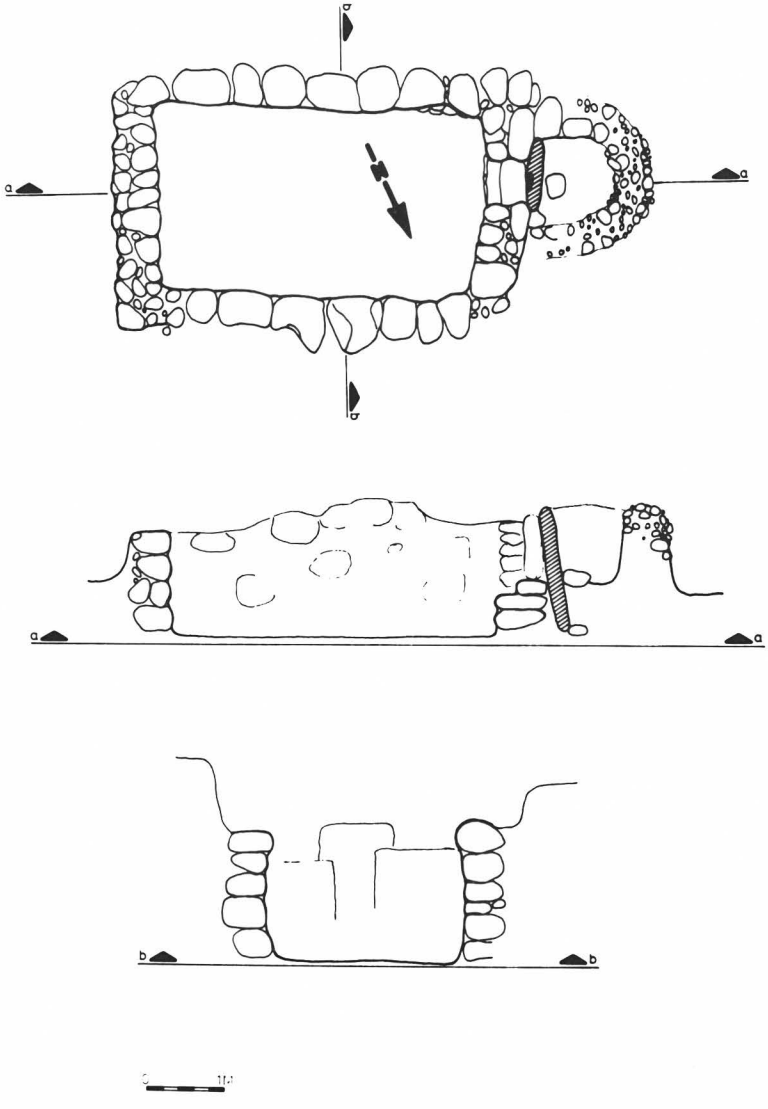


Fig. 03.2 Dilkaya 1985: Stone-built chamber-grave no. 1. Scale 1:100.

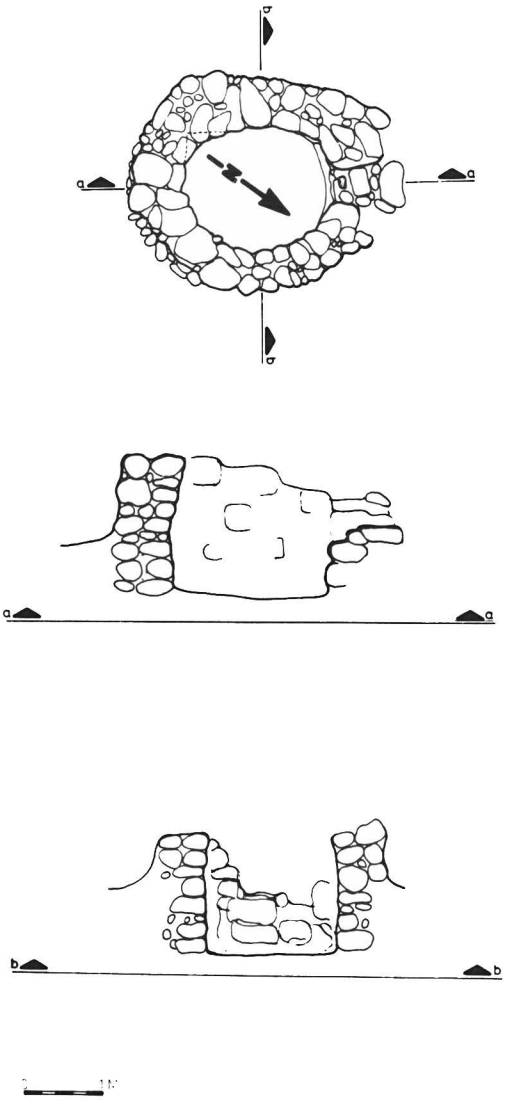


Fig. 03.3 Dilkaya 1986: Stone-built chamber-grave no. 2 (cremation burial). Scale 1:100.

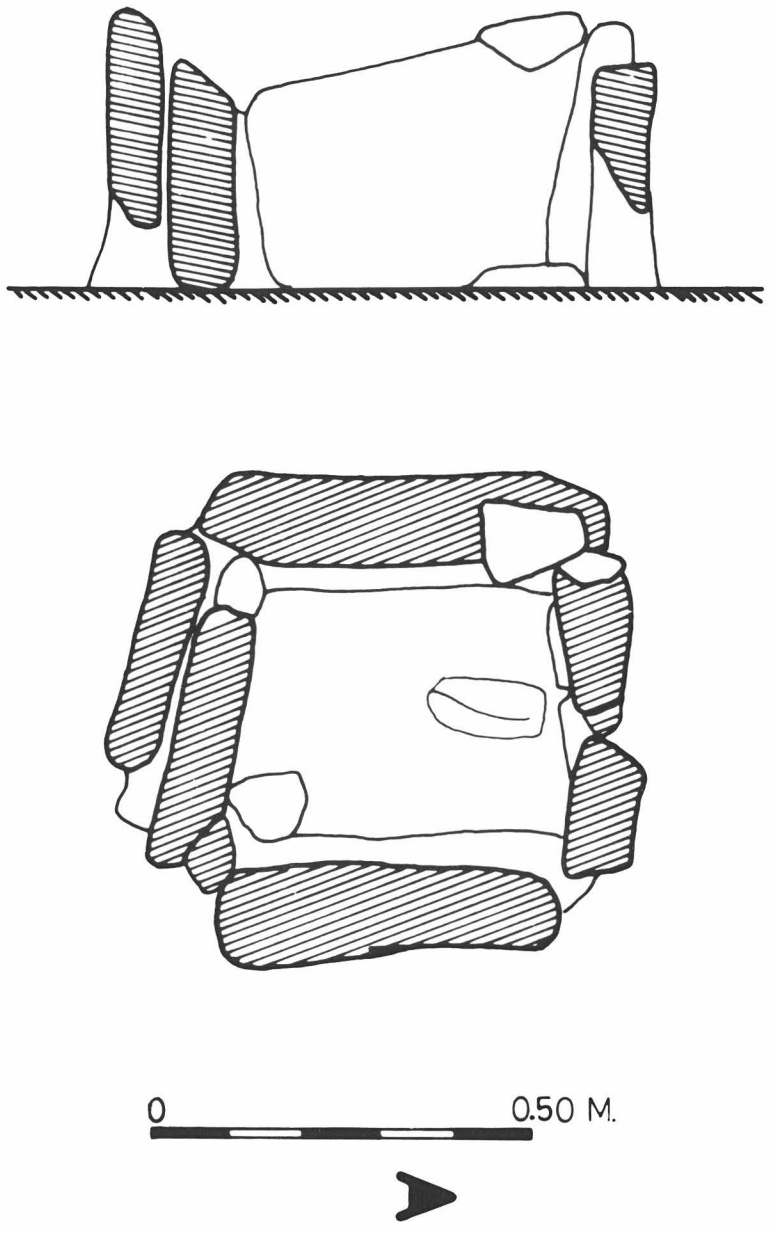


Fig. 03.4 Dilkaya 1984: Cist-grave no. 2 (cremation burial). Scale 1:10.

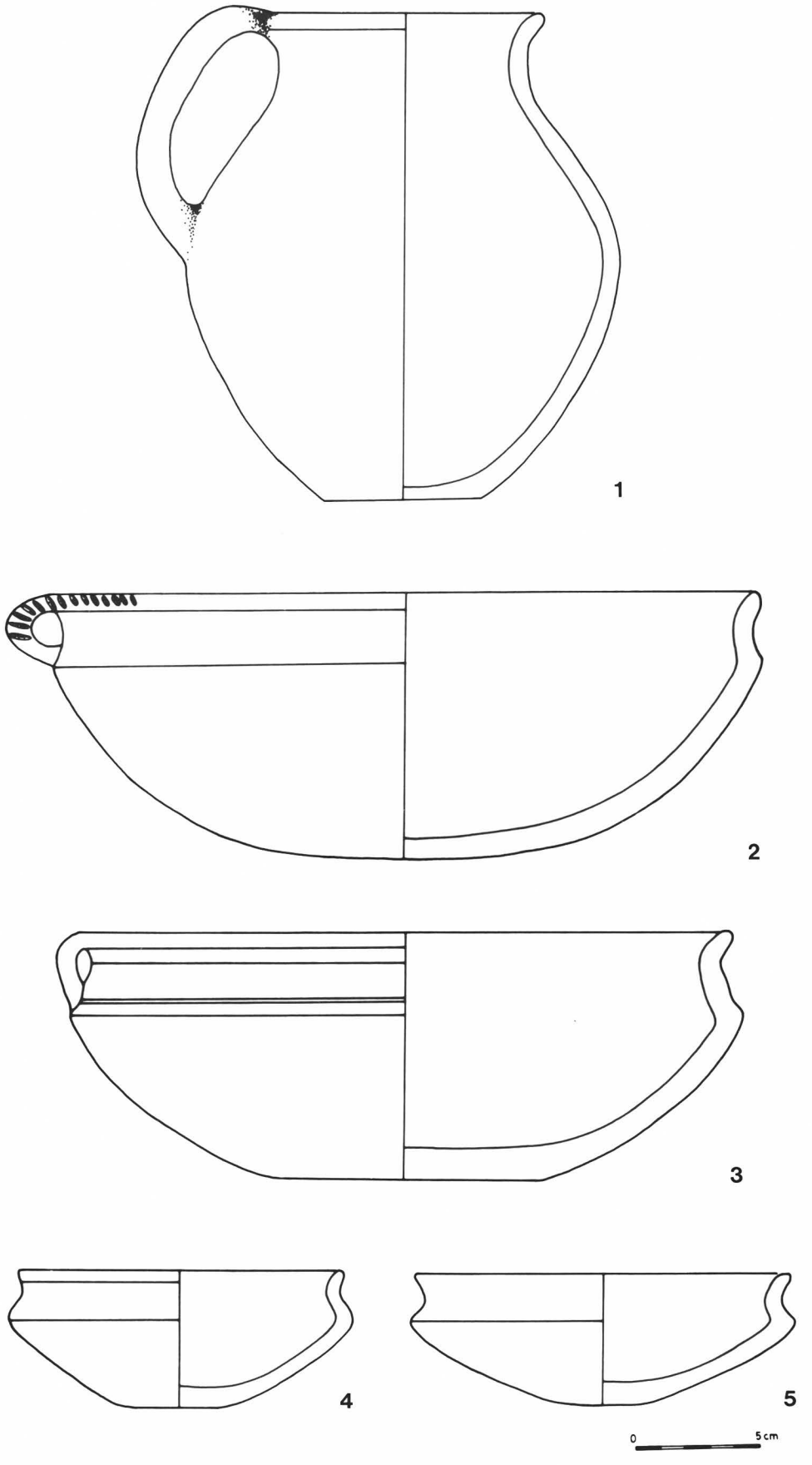


Fig. 03.5 Dilkaya 1986: Pottery from chamber-grave no. 1. Scale 2:5.

04. A BRONZE SWORD FROM LURISTAN WITH A PROTO-ARABIC INSCRIPTION

Hanne Lassen and
Vagn Fabritius Buchwald
Denmark

With the advanced metallurgical technology of the Late Bronze Age it became possible to cast a weapon in one piece and thus to achieve between hilt and blade a junction stronger than is found in earlier tanged daggers and swords whose hilts were separately riveted to a blade. The flange-hilted daggers and swords were sturdy weapons, serviceable both for thrusting and striking.

Typologically the Shir-i-Shiqat sword can be grouped among the flange-hilted daggers, dirks and swords with broad winged protrusions at the lower part of an hilt in the form of a spheric quadrilateral either of rectangular or of trapezoid shape. A number of parallels, some of which are from archaeological excavations in Luristan, are listed below. The contexts suggest that the dagger and dirk were produced in Late Iron Age I and this date seems to be confirmed by the fact that the type in question was in use contemporaneously with flange-hilted dirks with winged protrusions at the lower part of an hilt in the form of a spheric cone, as in finds in Kutal-i Gulgul (vanden Berghe 1973: 25).

This observation helps to date our sword, since many dirks with conically shaped hilts have been found in graves in Luristan.

The inscription (in Proto-Arabic) reads "For Ḥāfi - Good Luck".

The metallurgy of the weapon is here given in detail.

The sword published here is in the Department of Near Eastern and Classical Antiquities at the Danish National Museum in Copenhagen, inventory no. 14646 (**Pl. 04.1.1** and **Fig. 04.1**) (1). It is said to have come from Shir-i-Shiqat in Luristan, western Iran (**Fig. 04.2**) (2).

Measurement and Description

Total length: 0.505 m; length of blade: 0.33 m; length of hilt: 0.175 m; length of protrusion at lower part of hilt: 0.064 m; width at junction of hilt and blade: 0.034 m; max. width of flange: 0.023 m; max. thickness of blade: 0.06 m; weight: 0.425 kg.

The blade and hilt of this flange-hilted bronze sword (3) are cast in one piece. The blade, which has a broad, flat midrib, tapers to a point with slightly concave edges on the upper part, probably from constant whetting. The edges bear signs of sharpening, except on the ricasso, which descends 30 mm from the top of the blade.

The flanged hilt has a wedge-shaped pommel and a broader, protrusive part at the lower section of the hilt. Here the flanges are extended and wing-formed,

having been originally hammered over the inlay, probably of wood or stone; of the latter nothing remains.

Five areas of decoration are visible:

1. an inscription (**Pl. 04.1.2**), on the upper section of one of the hilt-flanges, consisting of six signs bounded by vertical lines on each side, and an incised fish on the lower section of the hilt-flange on the same side (**Pl. 04.2.1**);
2. an incised 'V' shape, on the side opposite the inscription, on the other, upper hilt-flange (**Fig. 04.1**);
3. a rhombic design on the one side of the blade just below the hilt, possibly representing a stylised fish with head facing the sword point and tail turned towards the hilt (**Pl. 04.2.2** and **Fig. 04.1**);
4. a decorative pattern of straight and zigzag lines on the other side of the blade (**Pl. 04.1** and **Fig. 04.1**). The upper left part of the pattern has a horizontal line with seven small, vertical strokes above and four slanting strokes below. In the middle of the blade are two vertical lines, the left-hand terminating in an 'E' shape, the right-hand in a half oval. The right part of the pattern consists of parallel zigzags, the first stroke of which begins between the two vertical lines in the middle, the remaining six strokes occupying the right side of the design;
5. a geometric design, which looks like bundled reeds, is seen on the flange of the pommel (**Fig. 04.1**).

Analysis and Metallographical Examination

Since it is well known that many Luristan bronzes are forgeries, the sword under review was submitted to analysis and metallographical examination. This was done in order to demonstrate whether the sword, which did not come from a scientific excavation, was a genuine piece or a fake produced by antiquity forgers of this century. A V-shaped section was track-sawed with a fine saw 60 mm from the point of the sword. The sword was cut halfway through so that information could be obtained both from the edge and from the massive midrib, 45 mm thick at this point.

The section was ground on wet emery paper through the grades 200-1000, then polished with 7, 3 and 1 micron diamond paste and finally polished with magnesiumoxide. The polished section was homogeneous, without pores and defects; locally, however, it displayed some intergranular corrosion. The section was then coated with carbon and analyzed by the energy dispersive X-ray technique on a scanning electron microscope (Phillips SEM with EDAX). Three different areas, each 0.8 x 0.5 mm, were scanned and average and standard deviation values were calculated (**Table 1**). In the same programme a series of Danish objects from the Bronze Age and a number of modern bronze standards were run in order to verify the validity of the analytical procedure. It was found that the analytical method in general was reliable but that the determination of antimony, Sb, caused problems because our technique could not separate tin and antimony signals sufficiently well; all that we can say at present is that the antimony content is well below the given figure of 0.19%. Lead comes out with 0.00, 0.00 and 0.61%, which is a correct expression of the microstructure. Lead is only slightly soluble in the copper matrix; instead it occurs as discrete, tiny blebs in the interdendritic spacings, such that one analysis may show zero and adjacent one 0.6% Pb.

Below (**Table 2**) the Copenhagen Luristan sword from Shir-i-Shiqat is compared to five swords in the Ashmolean Museum, Oxford, from the same

general area and period. The five earlier analyses were made by spectroscopy; the results, therefore, are not fully comparable. It is particularly interesting that almost no previous analyses of early bronze objects have reported the presence of sulphur. In the author's opinion this absence is a serious defect in the analytical results since the analysis of a large number of ancient bronze objects in this laboratory shows that they all contain significant amounts of sulphur, usually in the range of 0.4 to 1.6 weight %. The analytical data nos. 33-37 will therefore have to be corrected by an unknown factor in order to incorporate the sulphur content. Little can be deduced from the other elements, except that the Shir-i-Shiqat sword is rather low in tin and high in silver compared with nos. 33-37. The relatively low tin content is corroborated by the complete absence of delta-phase, as reported under the metallographic examination. Data nos. 34 and 35 will definitely contain delta-phase, while nos. 33, 36 and 37 may or may not display small amounts of delta-phase according to their working and heat treatment in antiquity.

For the metallographical examination the section was repolished and etched with a ferrichloride solution. After study and photomicrography, the section was again polished and etched, this time with a copperammonium-chloride solution. Finally, the sample was tested for hardness.

The section shows vestiges of a cast, dendritic structure with armspacings of *c.* 50-60 microns. This is in accordance with the sort of cooling rate which can be expected when half a kilogram of bronze runs into a cold sand or stone mould. The dendritic structure, however, has almost been eliminated by subsequent hot-working. At high temperatures of perhaps 600-700 degrees C the sword has been hammered, not very much along the midrib but quite substantially along the the cutting edge. This distinction can be deduced from the very different appearance of the midrib (**Pl. 04.3.1**) and the edge (**Pl. 04.4**). The rather uniform, equiaxial structure of the central portions changes gradually to the severely worked and laminated structure of the edge. During the hot working the metallic matrix recrystallised to equiaxial alpha-grains with many annealing twins (**Pl. 04.3.2**) and all delta-phase, if any had been present from segregation upon casting, was dissolved. The ubiquitous coppersulphides were hot worked into elongate shapes which were rotated into zones parallel to the exterior, hammered surface (**Pl. 04.5.1**). Any pores from casting were closed by the hot working process.

The recrystallised alpha-grains are about 30 microns in diameter in the central part but only 10-20 microns in diameter at the edge in harmony with the layer deformation along the edge. At the very cutting edge the grains are slightly deformed to a depth of about 25 microns, suggesting deformation from a hewing action when the sword was actually in use.

The hardness, measured at 200 g load with a Vickers diamond pyramid, varies systematically from 92+/-2 in the central, annealed parts to 122+/-3 in the thin parts near the edge. The hardnesses suggest that the bronze sword is not fully annealed but still retains some work-hardening from cold deformation, particularly at the edge. It appears that the concave shape of the edge is not an original shape from the casting of the sword but rather displays the combined effect of hot working to shape and subsequent cold working and some whetting. In addition to the final shape desired, the craftsman introduced by this method a very appropriate hard and fine-grained structure along the cutting edge. The annealing was also beneficial to the wings.

They were probably cast plain with the hilt and had later to be folded-in over the fillings of the hilt. For successful folding by cold hammering it was probably necessary first to anneal and then to homogenise the bronze.

It is remarkable that the structure is rich in coppersulphides (**Pl. 04.3.2** and **5.1**). Coppersulphides are not present in modern copperalloys, where sulphur is an unwanted element and usually kept well below 0.05 weight percent. The coppersulphides were examined by scanning electron microscopy with energy dispersive X-ray techniques and were verified as consisting of pure cuprous sulphide, Cu_2S. They appear bluish against the yellow-red bronzematrix and they occur evenly disseminated as 'stars' and shapeless, amoeboid blebs, ranging from 1 to 5 microns in size, often occuring in clusters of 3 to 10 particles. They are sufficiently ductile to be deformed with the metallic matrix at high temperatures and it is remarkable that they remain coherent with the matrix and do not crack open. The author has studied a number of bronze objects from 3000 to 500 BC excavated from Danish and Etruscan contexts and found that sulphur is always present. It occurs as the cuprous sulphide, Cu_2S, sometimes with small amounts of iron in solid solution, $(Cu, Fe)_2S$ and never contributes negatively to the mechanical properties of the bronze object. It appears that the presence of sulphur at the 0.4-1.6 weight % level in a bronze object of unknown origin can be taken as a guarantee of authenticity, since modern bronze manufacturings contain sulphur on a level 20-100 times lower. It is therefore advised that future examinations of ancient copper and bronze objects always include sulphur in the chemical analysis and, if a metallographic examination is carried out, that the presence of coppersulphide is verified.

The sword is generally in a very fine state of preservation. It is tarnished in brownish-black colours and locally displays smooth, red patches where the dark surface layer has been worn away by later handling. On the other hand, green patina of malachite and similar corrosion products were limited to very small and insignificant areas. A study of the section confirmed that the innermost corrosion layer consisted of a red cuprous oxide, Cu_2O, and the exterior layer of black cupric oxide, CuO. The total thickness varied somewhat on the section but 50-100 microns Cu_2O overlain by 5-30 microns CuO was typical. The corrosion extends 100-200 microns below the continuous Cu_2O layer as an intergranular corrosion attack, separating the recrystallised alpha-grains in a very characteristic pattern (**Pl. 04.5.2**). The coppersulphides survive relatively well and may be found as discrete, bluish, amoeboid blebs in the corrosion products. On protected parts of the surface, *e.g.* in the chiselled figures and inside the hilt, there are white to gray earthy deposits, of which a large part is a calcareous substance, according to its reaction with cold, dilute hydrochloric acid.

The Inscription and Decorations

In five different places on the hilt and the uppermost part of the sword blade are decorations and in one place on the hilt an inscription. They will be examined here, one for one, by stereomicroscopy, starting with the band on the pommel (**Fig. 04.1**). On a slightly raised ridge, originating in the casting process, is chiselled a delicate pattern of alternating horizontal and vertical lines. The tool used was sharp and the hand was well-trained with the result that the tooling gives the impression of an elegant decoration made by the master of the sword. Later handling and corrosion have given the pattern a natural patina. The individual grooves of the pattern are only about 0.1 mm deep.

The fish (**Pl. 04.2.1**) is 26 mm long and about 10 mm high. It is located on the hilt and has been chiselled into the bronze with coarser tools and with more brute force than the band on the pommel. One tool used was a chisel with a 2 mm edge and square ends; another was a chisel with a crescent shaped edge. The eye of the fish was made by using this tool twice. During the chiselling operation the metal was cold-worked to a distance of about 1 mm from the marks. Subsequent prolonged exposure to corrosion has roughened these areas and removed substantial amounts of metal, leaving them in rather sharp contrast to the more smoothly attacked parts of the sword further away.

The 'four-legged animal with a raised tail' (**Pl. 04.2.2**) on the top of the sword blade could have been executed by the same hand that made the fish. It is roughly cut to a significant depth and the adjacent metal is distorted to a distance of about 1 mm. Corrosion of the same type and age as that around the fish has changed this deformed area in a characteristic way. The bottom of the incised figures is covered by white, calcareous material.

The 'whip' on the hilt flange is entirely different (**Fig. 04.1**). It is cut by a different tool with a triangular cutting edge and the long line of the whip was made by letting the individual tool marks overlap so that the line under the stereomicroscope looks like a saw. The 'rhomboidal fish pattern' on the sword blade opposite the four-legged animal is apparently made by the same hand applying a triangular-edged chisel (**Fig. 04.1**). Both patterns seem to be later additions, to judge from the development of the corrosion products.

The inscription consists of six letters bounded on either side by vertical lines (**Pl. 04.1.2**). Both the letters and the vertical lines are roughly cut with considerable force, the deepest penetration into the bronze being about 0.6 mm. The letters are 3-4 mm high and the entire length between the vertical lines is 31 mm. The adjacent metal is cold worked to a distance of about 1 mm and subsequently deteriorated by a prolonged corrosion attack so that part of the interior of the closed letters has disappeared. At least three different tools have been used for the letters. Most important is a crescent-edged tool which has been applied twice to make letter no. 3, twice to make letter no. 4 and once to make letter no. 5 (**Fig. 04.5.1**).

The same tool has been used to chisel the eye of the fish, proving that the inscription and the fish are of the same age.

The study of the decorations and the inscription leads to the conclusion that the band on the pommel is contemporaneous with the manufacture of the sword, while the whip and the rhomboid fish are of rather recent date, perhaps this century. The other fish, the inscription and probably also the four-legged animal were made by an early owner of the sword but probably not by the craftsman responsible for the manufacture of the sword. These decorations and the inscription must be ancient, as proven by their extensive and genuine corrosion attack on the cold-worked metal adjacent to the chisel marks.

From a metallurgical point of view the sword is an excellent object, homogeneous, free of pores, tough in the bulk and of an appropriate hardness along the edge. With its elegant band decoration on the pommel it bears evidence of very good craftsmanship.

Typological and Chronological Considerations

Flange-hilted bronze swords:

1. Within Luristan

With the advanced metallurgical technology of the Late Bronze Age it became possible to cast a weapon in one piece and thus to achieve between hilt and blade a junction stronger than is found in earlier tanged daggers and swords whose hilts were separately riveted to a blade. The flange-hilted daggers and swords were sturdy weapons, serviceable both for thrusting and striking.

Typologically the Shir-i-Shiqat sword can be grouped among the flange-hilted daggers, dirks and swords with broad winged protrusions at the lower part of an hilt in the form of a spheric quadrilateral either of rectangular or of trapezoid shape. A number of parallels, some of which are from archaeological excavations in Luristan, are listed below (**Table 3** and **Fig. 04.3.1-5**). The contexts suggest that the dagger and dirk (**Fig. 04.3.1-2**) were produced in Late Iron Age I and this date seems to be confirmed by the fact that the type in question was in use contemporaneously with flange-hilted dirks with winged protrusions at the lower part of an hilt in the form of a spheric cone (**Fig. 04.4**), as in finds in Kutal-i Gulgul (vanden Berghe 1973: 25).

This observation helps to date our sword, since many dirks with conically shaped hilts have been found in graves in Luristan, *e.g.* Kutal-i Gulgul (vanden Berghe 1973: 24) and Bard-i Bal (vanden Berghe 1973: Fig. 11, 17/43, Fig. 15,5, Fig. 17,5,6), dated to Late Iron Age I. Furthermore this style of sword has close typological parallels with those bearing the names of monarchs of the second Isin Dynasty (1158-1027 BC) (Nagel 1959-1960: Pls. 1, 2, 8). Unfortunately inscribed dirks such as these come from clandestine excavations and have not, to the author's knowledge, been subjected to metallurgical examination in order to determine their authenticity.

2. Outside Luristan

Flange-hilted bronze daggers, dirks and swords, cast in one piece, with or without wings at the lower part of the hilt, have a wide distribution in space and time. They feature extensively on excavated sites in Syria, Palestine, Mesopotamia, Khuzistan, Anatolia and the Caucasus, where they date to the last centuries of the Second Millennium BC when they became very common (4). Bronze flange-hilted daggers, dirks and swords remained in use well into the Iron Age; one of the latest examples known, which seems to provide the lower limit of their chronology, comes from Burned Building I of level IV at Hasanlu, Azarbaijan, dated *c.* 800 BC (Dyson 1964: 41).

In view of the Proto-Arabic inscription (see below) it is also interesting to note that a number of flange-hilted swords and daggers have recently been found in the Oman peninsula. Five flange-hilted daggers without wings were found at Al Quasais, 13 km northeast of Dubai (Salman 1974: Pl. 14.a; Lombard 1984: Fig. 2, 3-7), together with bronze bowls and arrowheads of a type which bear great similarity to arrowheads found in Luristan (Lombard 1984: 229). At Jebel Hafit in Abu Dhabi a rich grave (no. 20) contained a flange-hilted dirk (5). The dirk has a penannular rib on the lower part of the hilt as do many dirks and swords which come both from clandestine and from scientific excavations in Luristan and northwestern Iran (vanden Berghe 1964: Pl. 34.227). Another sword with a crescent shape decoration comes from a house in level II at Rumeilah (Boucharlat and Lombard 1983: Fig. 9). It was found together with bronze

bowls and arrowheads similar to arrowheads found in Luristan. At Selma a large hoard of approximately 290 bronzes was found. An astonishingly large proportion of these bronzes, comprising arm rings, daggers and bowls (Weisgerber 1981: Fig. 72) date to the First Millennium BC. If one turns to ceramics, there seem to be similarities between Luristan and the Oman peninsula (6). Future research will, it is hoped explain the existence of these apparent parallels.

Decipherment of the Inscription

Müller (7), who studied a photograph of the inscription, has tentatively read it as Proto-Arabic "l-ḥ-f-h-n-'", meaning "For (or belonging to) Ḥāfi - Good luck". He comments as follows:

> **"Es besteht wohl kein Zweifel, dass die Schriftzeichen dem südsemitischen Schriftkreis zuzuordnen sind; das Sabäische (sowohl Monumentalschrift als auch Minuskel - und Kursivschrift scheidet aus, und ist wegen der geringen Zahl der Buchstaben zu sagen, welchem Alphabet die Zeichen zuzuordnen sind, ob der ältesten Form des sogenannten Thamudischen, wie es uns etwa aus Graffiti von Taimā bekannt ist, oder dem durch wenige Schriftzeugnisse belegten 'Proto-Arabisch', wobei freilich die Ubergänge zwischen beiden nicht genau festzulegen sind. Ich würde allerdings eher dazu neigen, die Inschrift als Schriftzeugnis des Proto-Arabischen anzusehen. Sie schlagen in Ihrem Brief folgende Lesung vor: l-ḥ (?)-g-ḥ-n-'. Was das dritte Zeichen betrifft, so möchte ich es ěher f lěsen, da der von Ihnen gelesene Buchstaben erst in den späteren thamudischen Inschriften die Gestalt eines Ovals hat, während in den frühen Inschriften g die Form eines Winkelhakens aufweist. Das zweite Zeichen möchte man eher h lesen als ḥ, wenn der Buchstabe h nicht bereits für das vierte Schriftzeichen vergeben wäre. Ich möchte es mit Vorbehalt h lesen (Garbini 1976: 173, und 1979: 71). Die anderen Schriftzeichen scheinen mir richtig gedeutet worden zu sein, so dass sich folgende Lesung ergäabe: l-ḥ-f-h-n-'.**
>
> **Und nun zu einer möglichen Deutung. Wenn die Inschrift nur aus einem Namen bestehen würde, müsste es ein zusammengesetzer Name sein, d.h. man würde ein theophores Element erwarten; ein solches ist jedoch nicht erkennbar. Zwar kommt hn' sowohl als eigenständiger Name als auch als Bestandteil zusammengesetzter Namen vor, doch ist, wie schon gesagt, weder lḥf noch ḥf als theophores Namenselement im altarabischen Raum bekannt. Das erste Zeichen ist wohl die Präposition 1 zur Angabe des indirekten Objekts bzw. 'für'.**
>
> **Die nächsten beiden Zeichen wären dann ein Personenname, hf, ein Name, der in dieser Schreibung auch im Safaitischen belegt ist (s. Winnett and Harding 1978: nos. 2442, 2983 und 3010 und 569, wo der Name allerdings *Ḥaff gelesen wird); die arabischen genealogischen Werke kennen einen al-Ḥāfi bin Qūdaca (s. Caskel 1966: 290b). Da bei dieser Interpretation hn' als Eigenname ausscheidet, müsste man darin ein Substantiv sehen, wobei sich das arabische Nomen hanā' 'Glück, Glückwunsch, Wohlergehen'**

anbietet. Mit allem Vorbehalt möchte ich somit die folgende Übersetzung vorschlagen: 'Für Ḥāfī Glück(wunsch)!'

Noch ein Wort zur Datierung der proto-arabischen Inschriften. Garbini (1979: 69) setzt sie zwischen dem 8. und 6. Jahrhundert v. Chr. an, van den Branden (1962: 46) datiert sie in das 8./7. Jahrhundert, Mendenhall (1979: 106) zwischen dem 9. und 7. Jahrhundert, um nur diejenigen Autoren zu nennen, welche sich in letzter Zeit ausführlicher mit dem kleinen Corpus jener kurzen Inschriften beschäftigt und eine Datierung vorgeschlagen haben".

Interpretation

The authenticity of the sword published here has been demonstrated by a number of factors: decipherment of the inscription on the hilt, data concerning its typological parallels with other excavated daggers and swords and metallurgical examination to which it has been submitted.

The chemical analysis of the alloy showed the presence of sulphur, which is not present in modern bronzes. Sulphur has not been sought in previous examinations of Luristan bronzes. Thus a comparison of the sulphur content of this sword with other swords is not possible. Otherwise the composition of the alloy of our sword is comparable with other Luristan swords submitted to metallurgical analysis. None of the swords have any significant content of zinc. In general it is felt that zinc, if found in amounts of 2% or more, indicates that a bronze alloy cannot be older than the Roman period or perhaps the Persian period (8).

The metallographical examination of the patina on our sword also demonstrates the authenticity of the sword. A genuine corrosion is built up by clearly crystallised copper components, as seen on the photograph (**Pl. 04.5.2**), whereas a false patina is fine-grained and seen on top of an etched metal surface (Riederer 1981: 99-100). The intergranular corrosion is another guarantee that this sword is ancient, because such a structure cannot be created artificially and takes many years to form.

The technology applied to the manufacture of the sword has been throughly examined and described above, leaving no doubt that this sword was made to be used as a weapon.

The stereomicroscopic examination of the inscription and of the decorations is of greatest importance. Although the sword has been shown to be ancient, the inscription could of course be secondary, *i.e.* later than the date of manufacture, or even incised in the modern era. This last possibility can almost certainly be discounted. Only a handful of Proto-Arabic inscriptions have appeared during the course of the 20th century. None of these is found on bronzes but only on seals or ceramics in the area shown on the map (**Fig. 04.5.2**). It would be highly unlikely that a forger would choose such a rarely found and difficult script, only known by a very small group of scholars, to perform a forgery, let alone that he could correctly compose a text like the one here which does not duplicate any of the other extant Proto-Arabic inscriptions. (Cuneiform and Aramaic are the most commonly found scripts on Persian bronzes). The metallurgical examination of the inscription and the patina around the letters only confirms the arguments, set out above, for the antiquity of the inscription. Interestingly, the same tool seems to have been used to make three of the letters in the inscription as well as the eye of the fish, indicating that they were made at the same time by the same engraver.

The inscription was incised in antiquity, as shown by the patina around the letters but it was probably not engraved by the smith who made the sword which typologically may be dated to the Late Iron Age I and remained in use until *c.* 800 BC.

The Proto-Arabic inscriptions are dated roughly from 900 BC to 600 BC (see above page 45). It is probable that the inscription was engraved during the first part of this period, *i.e. c.* 900-800 BC. After 800 BC bronze swords of this type are not documented in archaeological contexts and it is probable that they went out of use as iron swords became more popular.

The presence of this type of sword, however, with a Proto-Arabic inscription in a western Iranian context raises many questions.

First there is the question of provenance. Direct evidence of Arabian penetration into greater Mesopotamia is shown by the distribution of Proto-Arabic inscriptions and by toponymic and onomastic material (Eph'al 1974: 108-116; Zadok 1981: 67). The Shir-i-Shiqat sword is, to the best of the author's knowledge, the only Luristan bronze with a Proto-Arabic inscription. To find a Proto-Arabic inscription on a bronze sword from Luristan, however, even from a valley on 'the Great Khorasan Road', is indeed astonishing. This location is certainly to the northeast of the main distribution area of the small corpus of Proto-Arabic inscriptions hitherto known (**Fig. 04.5.2**) (Potts 1984: Table 7; Bron 1985: 337-342), although two unprovenanced, privately owned seals with Proto-Arabic inscriptions have, on purely stylistic criteria, been ascribed to Luristan by the Erlenmeyers (9). Perhaps the Arabs not only penetrated into southern Mesopotamia but also to a lesser degree into areas more to the east, including the region of Rashi in the eastern-most part of Babylonia (Zadok 1985a: 259-260; 1985b: 42-48). This gradual spread of the Arabs towards the north and northeast from the Arabian Peninsula would help to explain the presence of a sword with a Proto-Arabic inscription in Luristan.

In recent years communication routes in the northern, northeastern and central parts of the Arabian Peninsula have been the subject of extensive studies (Potts *et al.* 1978: 7-29). Because of its overland routes, not to mention the obvious maritime routes in the Persian Gulf, northeastern Arabia has always been in contact with neighbouring regions (Potts *et al.* 1978: 97).

Archaeological excavations on Bahrein and in the Oman Peninsula point convincingly to the existence of inter-communication between western Iran and the Arabian Peninsula during the Iron Age. Excavations are currently in progress in Arabia and it will be for future investigators, using strictly typological and metallurgical methods of analysis, to examine the archaeological material from Iran and Arabia and to assess the possible scope of interregional contact that prevailed in the areas adjoining the Persian Gulf during the late second and early First Millennium BC. Perhaps they will also be able to determine the origin of the Shir-i-Shiqat sword with its terse Proto-Arabic dedication: "For Hāfi - Good luck".

Notes

1. I gratefully acknowledge the generous support of Mag.art. Søren Dietz, Keeper of the Department of Near Eastern and Classical Antiquities, the National Museum of Denmark, in allowing me to publish the above described Luristan sword. I wish egually to express my gratitude to Mag.art.

John Lund for his kind help. My thanks also go to Dr. Daniel Potts, who read and commented on an earlier draft of this presentation, and to Poul Christensen of the Institute of Classical Archaeology, Copenhagen, for drawing the maps and the sword under review.

2. Moorey 1971: 73. Shir-i-Shiqat is the same as Shir-i-Chiga (Stein's Pilla Kabut) no. 10 on the map, Thrane 1964: Fig. 1.
Sir Aurel Stein counted 180 opened graves at Pilla Kabut (Stein 1940: 154).
3. The definition of daggers, dirks and swords is based on (Gordon 1953: 67). Total length not exceeding 0.36 m = dagger; 0.36 to 0.50 m = dirk; over 0.50 m = sword.
4. Müller-Karpe 1980: Pls. 92.14, 15; Pls. 94.13, 14; Pl. 106.20; Pl. 111.16; Pl. 133.B3; Pl. 142.C5; Pl. 144.B2; Pl. 150.3; Moorey 1971: 71-74; Boehmer 1983: Pl. 25a. (The flange-hilted dirk was found in a house dated *c.* 1230 BC); Erkanal 1977: Pl. 13,35; Medvedskaya 1982: Fig. 11, 1-11.
5. Bibby 1965: Fig. 6; Frifelt 1971: 355-385. The 'sword' (0.425 m) was dated by the excavator Bibby to the end of the Second Millennium BC *c.* 1350 BC. Frifelt proposed a later date, the 9th century BC, based on comparison of a polished shell button, found together with the sword, with similar buttons from Nimrud. These datings are problematic, because accurate typology is lacking. Lombard points to the fact that no archaeological assemblage, representing the Iron Age I, has so far been found in the Oman peninsula; he suggests that the Omanean material be dated to the Iron Age II and III (1984: 233).
6. Weisgerber 1981: 228. Certain reservations concerning this subject are expressed by Lombard in his thesis 1985: 178 n. 9).
7. I gratefully acknowledge Professor Walter W. Müller for his decipherment of the inscription on the sword. I am also grateful to Professor Eduard Nielsen for relating the inscription, in the initial stage of this study, to the South Semitic (possibly Minaean-Sabaean sphere) alphabets, but certainly not to the Aramaic. I am most thankful too to Professor Frede Løkkegaard for relating the inscription to the northern scripts of the Arabian alphabets (possibly the Thamudic inscriptions) and for pointing towards the meaning of the last three letters being the Arabic noun " h-n-' ".
8. Moorey 1971: 298-299. Moorey found a 14-18% zinc content in some bronzes at the Ashmolean Museum. This raises considerable doubts as to the authenticity of these bronzes.
9. Erlenmeyer, M.-L. and H. 1965: Pls. 11.63, 64. Parallels to a kneeling archer motif on the cylinder seal and the sphinx motif on the stamp seal published by the Erlenmeyers are often found in situlae, reported to be from Luristan and Kermanshah, Kurdistan, but never found in archaeological context. These motifs are very common on Neo-Assyrian and Neo-Babylonian seals (see Moortgat 1940: Pl. 76.639, Pl. 87.747). It seems more likely therefore that these two seals were manufactures in Babylonia, *i.e.* within the distribution area of Proto-Arabic inscriptions.

Table 1
Energy Dispersive X-ray
Analysis of the Copenhagen Luristan Sword

	Cu	Sn	S	Ag	Sb	Fe	Ni	Ze	As	Pb
1	90.24	7.49	1.17	0.36	0.24	0.29	0.17	0.04	0.00	0.00
2	92.21	6.50	1.03	0.00	0.11	0.13	0.03	0.00	0.00	0.00
3	90.57	6.75	1.05	0.24	0.22	0.22	0.34	0.00	0.00	0.61
x	91.01	6.91	1.08	0.20	0.19	0.21	0.18	0.01	0.00	0.20
s	1.06	0.51	0.08	0.18	0.07	0.08	0.16	0.02	-	0.35
s(%)	1	7	7	92	37	8	86	173	-	173

Table 2
The Copenhagen Luristan Sword compared with five Swords, analysed by Moorey 1971: 328

	Cu	Sn	S	Ag	Sb	Fe	Ni	Zn	As	Pb
This sword	91.01	6.91	1.08	0.20	<0.19	0.21	0.18	0.01	0.00	0.20
Analysis No										
33	89.3	8.5	n.d.	0.022	n.d.	0.27	0.21	0.20	0.40	1.2
34	81.7	15.7	n.d.	0.059	n.d.	0.35	0.39	n.d.	n.d.	1.9
35	88.9	11.0	n.d.	0.012	n.d.	0.028	0.20	n.d.	n.d.	0.026
36	91.7	7.6	n.d.	0.014	n.d.	0.18	0.090	n.d.	0.40	n.d.
37	90.0	9.8	n.d.	0.086	n.d.	0.055	n.d.	n.d.	n.d.	n.d.

Table 3
Five Luristan bronzes of the same type
as the sword allegedly from Shir-i-Shiqat

Fig.	*Length*	*Decoration Inlay*	*Comments*
04.3a	33.3 cm		The cist grave with one inhumation contained apart from the bronze dagger, one ceramic jar of brown-beige colour, one bronze arrowhead, one whetstone, some perles and flint implements.

Provenance	*Reference*	*Date*
Cham Chakhal, grave no. 2, Luristan, Iran	Vanden Berghe 1979: 1-39, Fig. 20.2, Pl. 15.A	Late IA I, *c.* 1150-1000 BC

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Fig.	*Length*	*Decoration Inlay*	*Comments*
04.3b	36 cm	fan-shaped stone inlay	The IA I cist grave was reused in IA II. The dirk was found in the back of the grave with IA I pottery and four flange-hilted bronze swords, one of which has an oblong, rounded winged protrusion at the lower part of the hilt.

Provenance	*Reference*	*Date*
Kutal-i Gulgul, grave B 3, Luristan, Iran	Vanden Berghe 1973: 16-29, 25	Late IA I

Table 3 cont.

Fig.	*Length*	*Decoration Inlay*	*Comments*
04.3c	53.5 cm		Alloy composition (%): Cu 90.47, Sn 8.48, Pbl 0.05, Zno 0.08, Ago 0.07.

Provenance	*Reference*	*Date*
Medelhavsmuseet, Stockholm, Sweden	Arne 1962: Fig. 6	

****

Fig.	*Length*	*Decoration Inlay*	*Comments*
04.3d	33.8 cm	Stone inlay Geometric decoration	Alloy composition (%): Cu 91.7, Sn 7.6, As 0.4, Ni 0.09, Fe 0.18, Ag 0.014, Au 0.018.

Provenance	*Reference*	*Date*
Ashmolean Museum Oxford, England	Moorey 1971: Fig. 13.50	Late IA I

****

Fig.	*Length*	*Decoration Inlay*	*Comments*
04.3e	38.4 cm	Geometric decoration	Alloy composition (%): Sn 10.8, Pb 0.1, Ag 0.1, Sb 0.05, As 0.1, Ni 0.1, Fe 0.05.

Provenance	*Reference*	*Date*
Nicholson Museum Sydney, Australia	Birmingham 1963: 71-82, Fig. 1a	Late IA I

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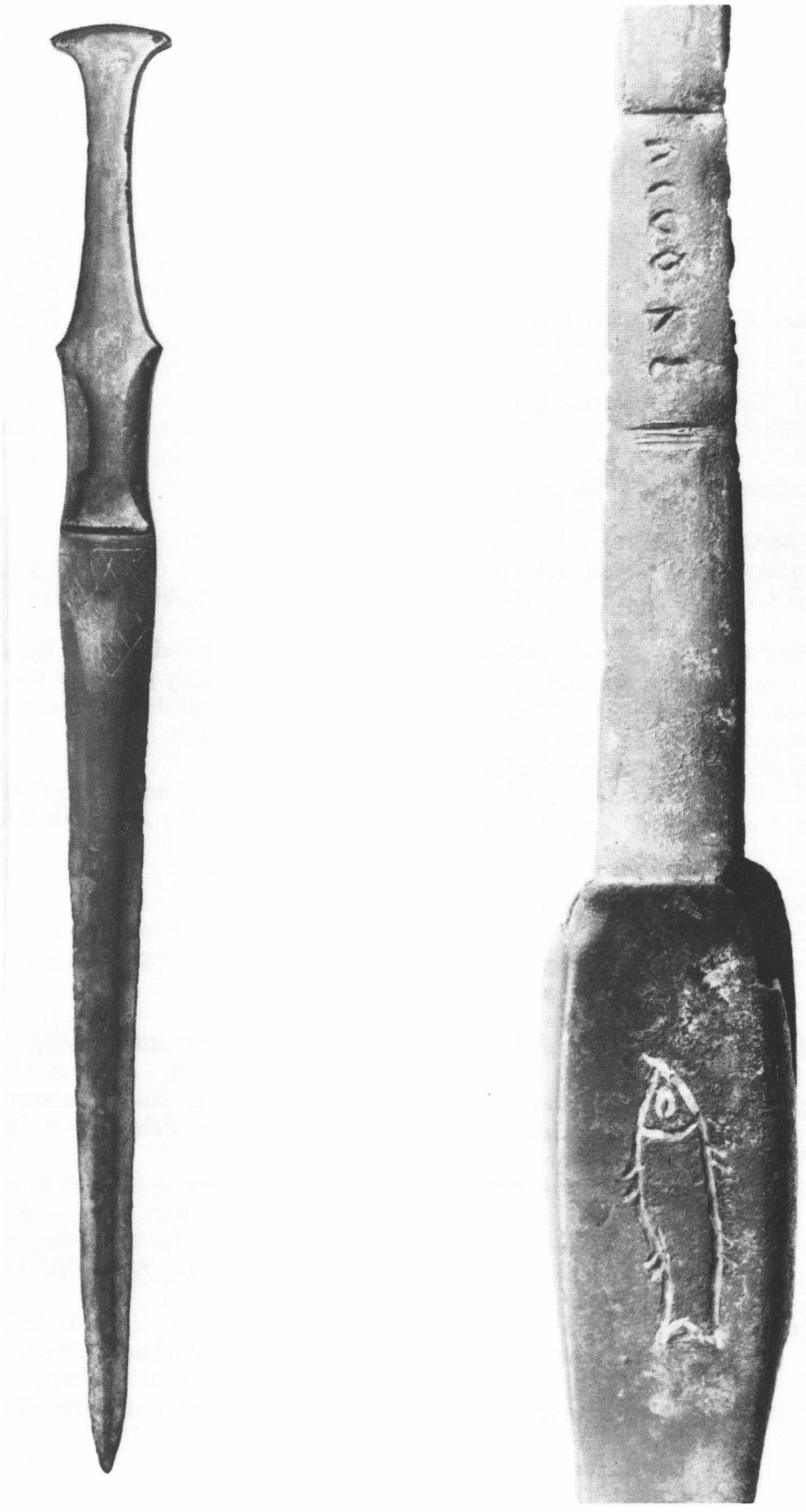
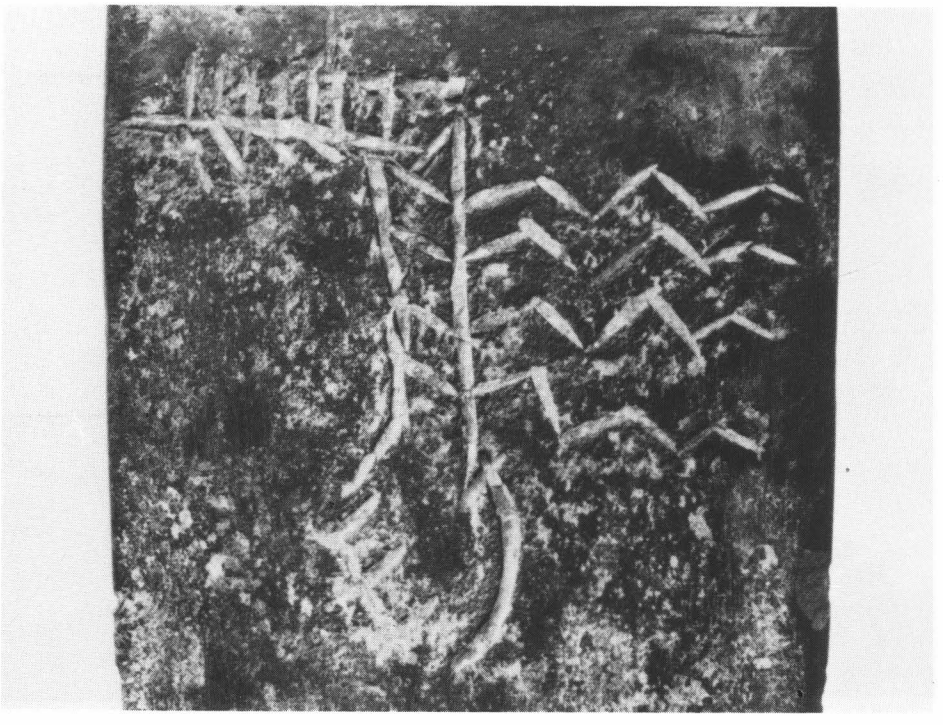
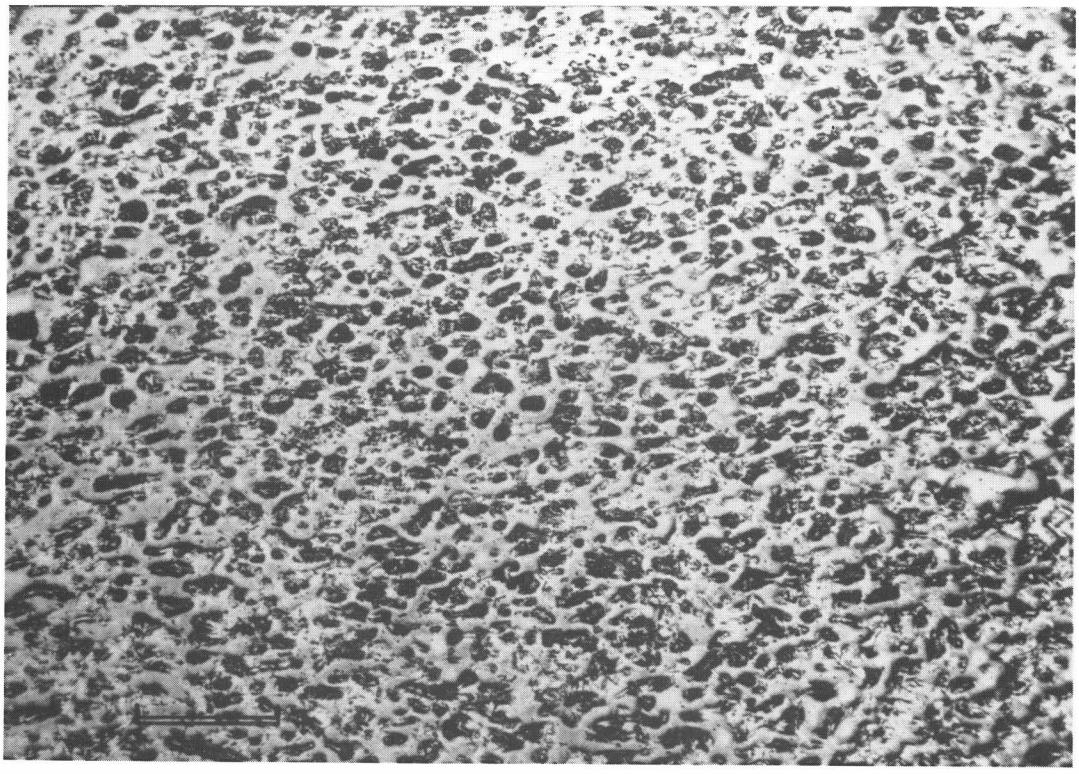


Pl. 04.1.1 Bronze sword allegedly from Shir-i-Shiqat.
Pl. 04.1.2 Fish decoration and inscription on hilt-flange.

Pl. 04.2.1 Fish decoration on hilt-flange.

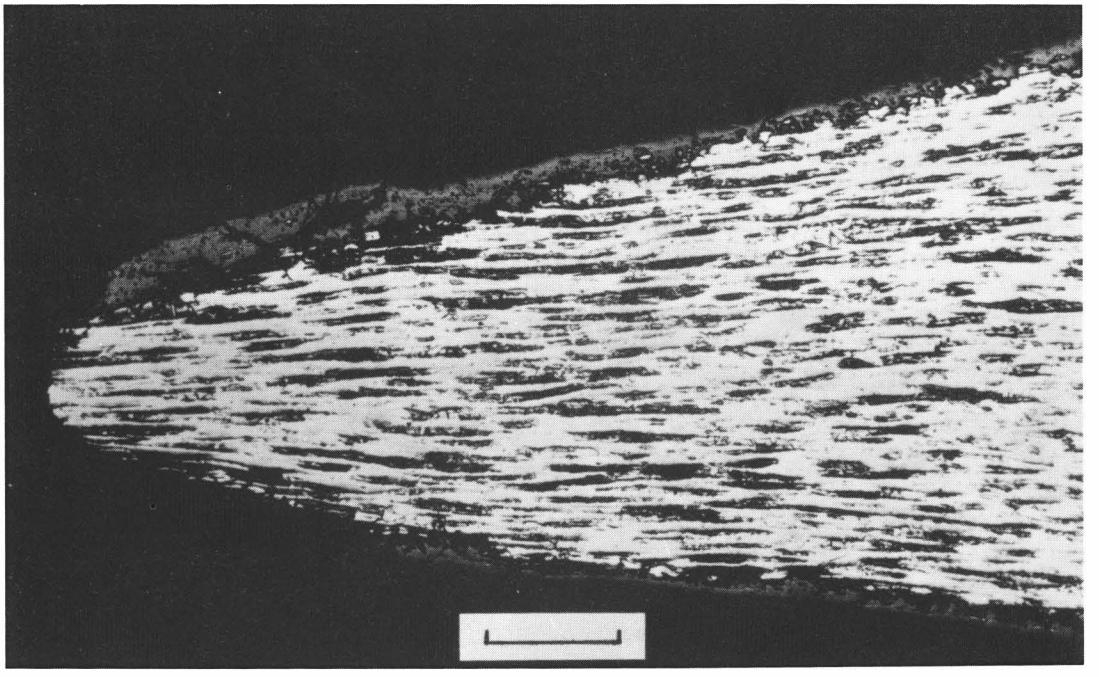


Pl. 04.2.2 Geometric decoration on blade.

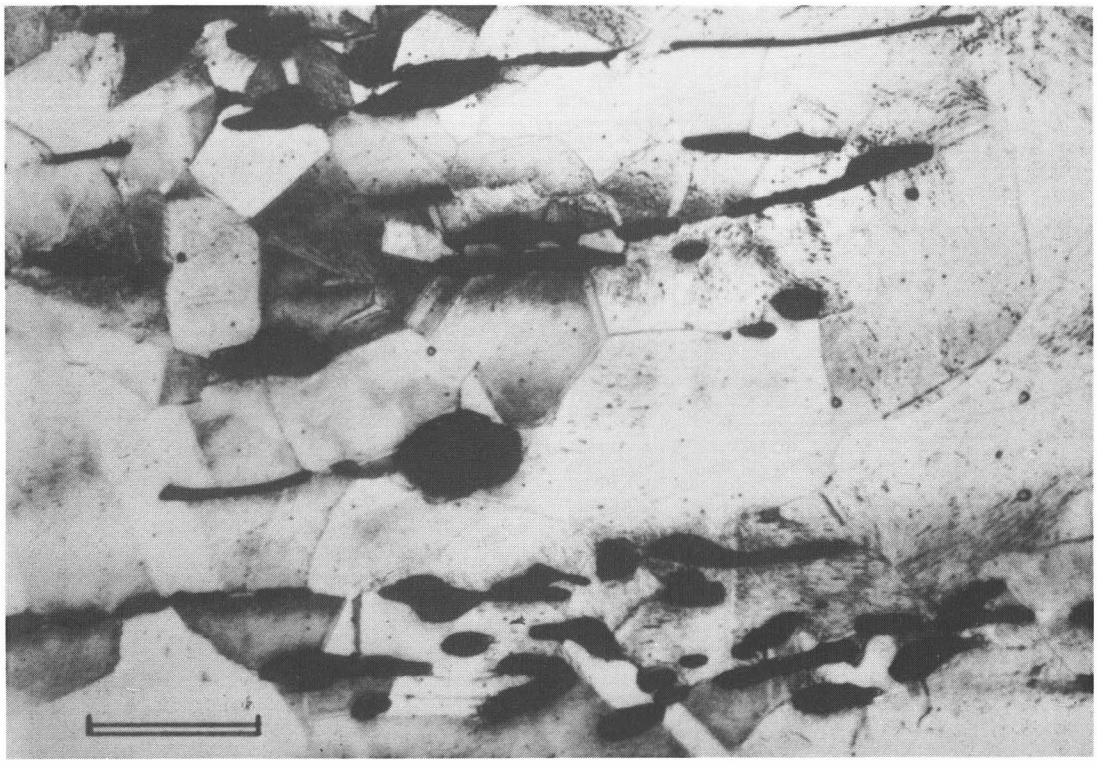


Pl. 04.3.1 Microstructure of the central part of the Luristan sword blade, polished and etched. The massive midrib is only slightly deformed by hot working. Scale bar 300 microns.

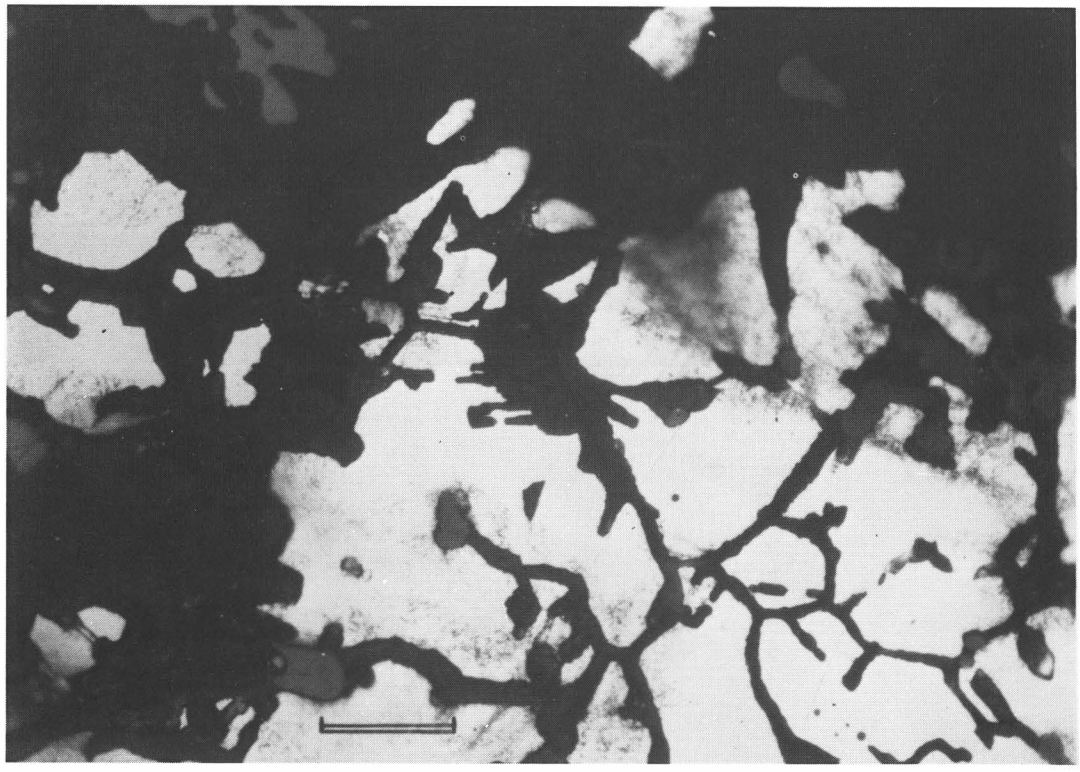
Pl. 04.3.2 Detail of Pl. 04.3.1, showing the recrystallized alpha-grains with annealing twins, and the irregular, amoeboid Cu_2S inclusions, blue on the section, black on the picture. Scale bar 20 microns.



Pl. 04.4 The cutting edge of the sword. The structure is severely worked by forging at high temperature. Along the surface are Cu_2O and CuO corrosion products. Scale bar 300 microns.



Pl. 04.5.1 Detail of Pl. 04.4, showing the recrystallized alpha-grains and the hot worked, elongated Cu_2S particles (black). Scale bar 20 microns.



Pl. 04.5.2 Part of the corroded surface of the sword. From a rather massive corrosion layer of Cu_2O (above), the corrosion attack penetrates along grain boundaries of the recrystallized alpha-phase. In the cuprous oxide layer above and to the right are still unattacked cuprous sulphide inclusions (amoeboid, grey). Scale bar 20 microns.

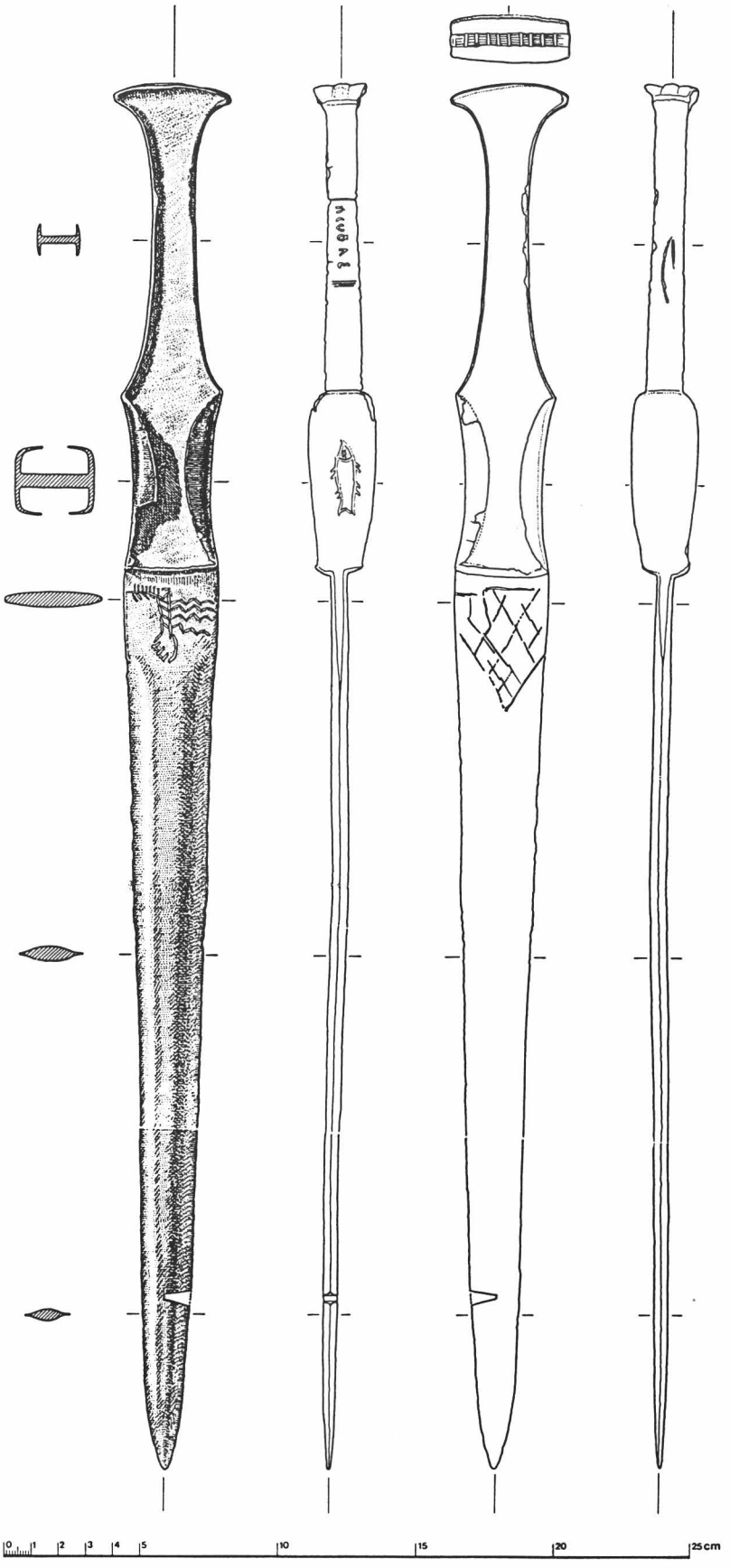


Fig. 04.1 The Shir-i-Shiqat sword.

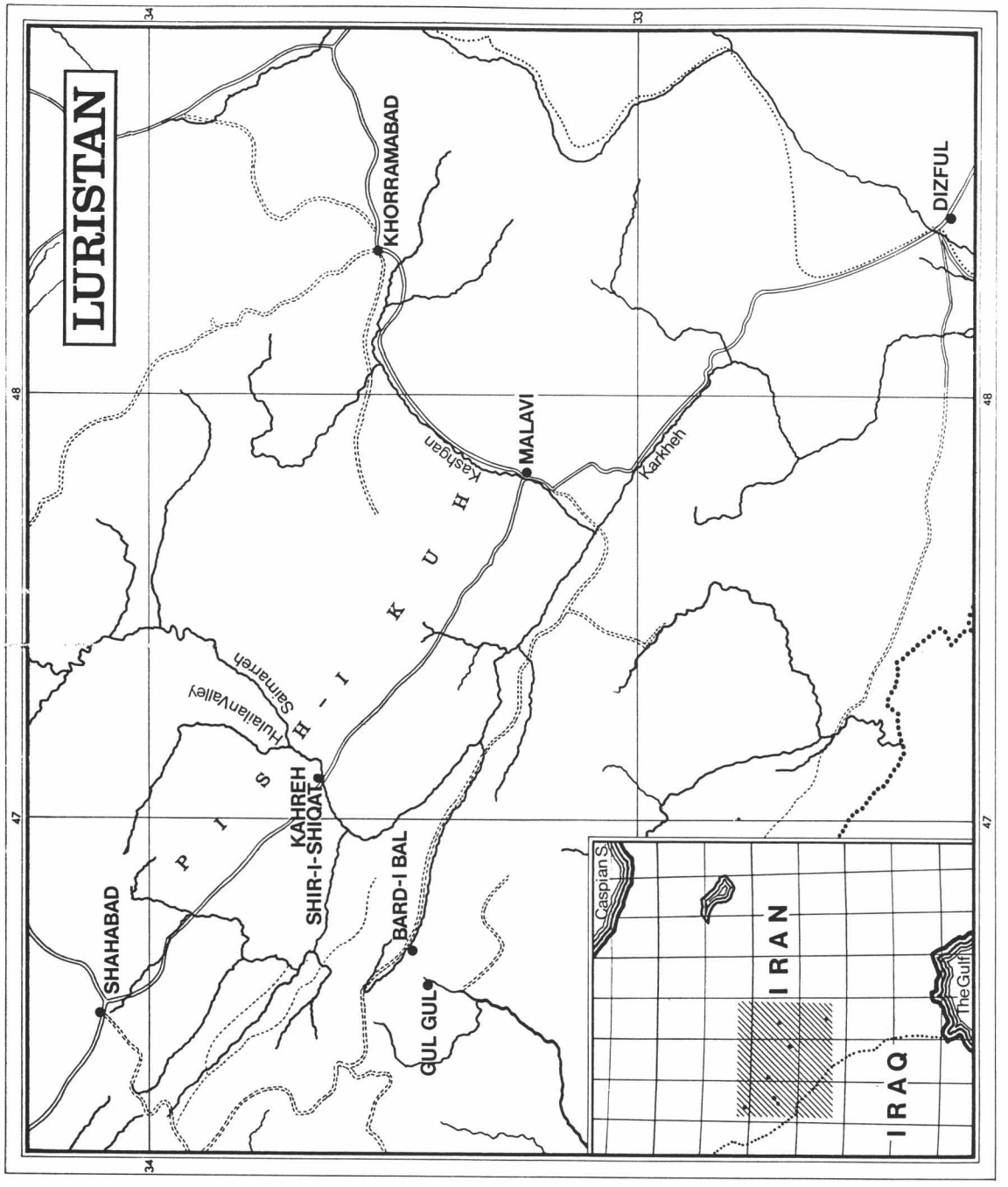


Fig. 04.2 Map of Luristan, Iran.

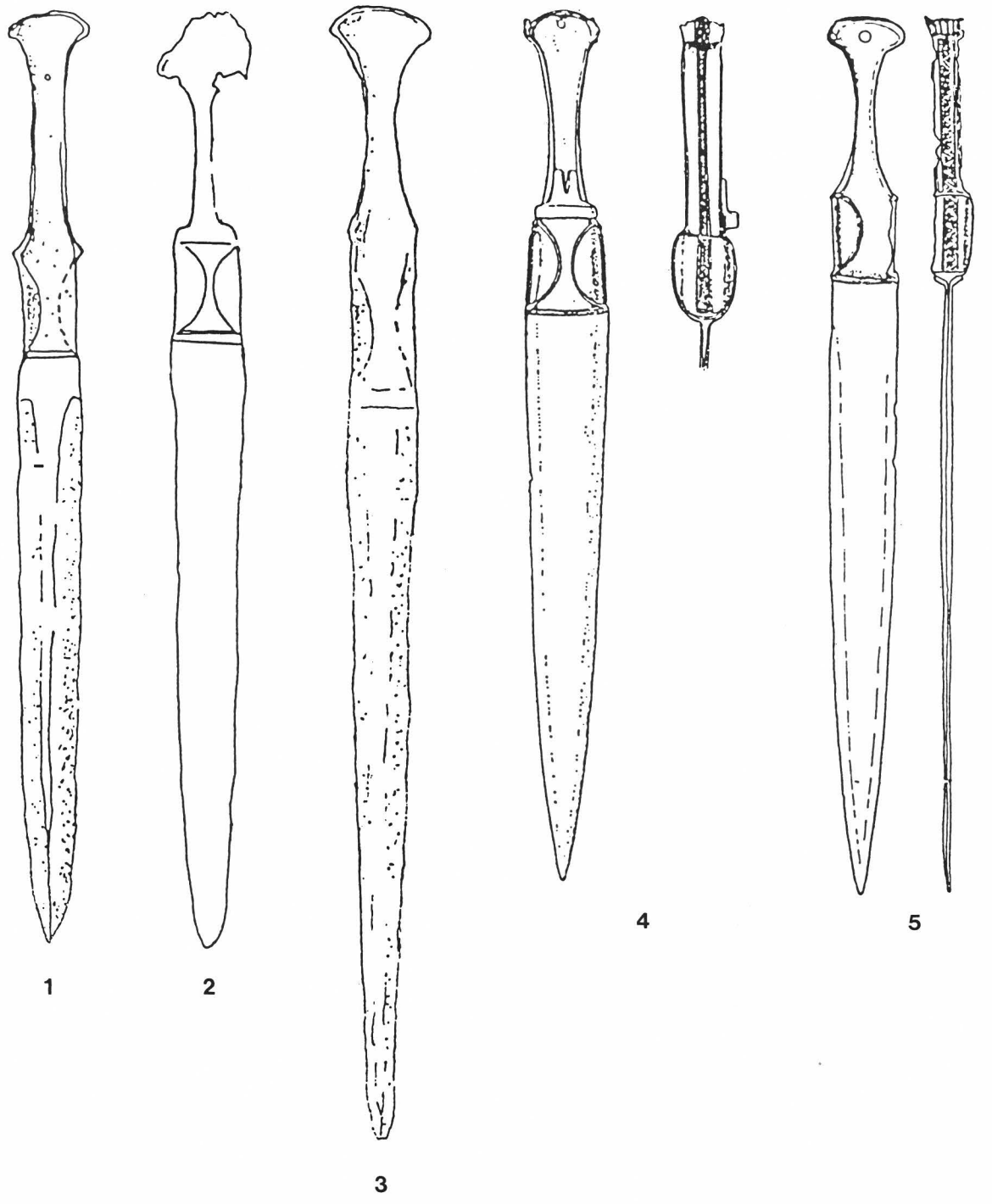


Fig. 04.3 Luristan bronzes listed in Table 3.

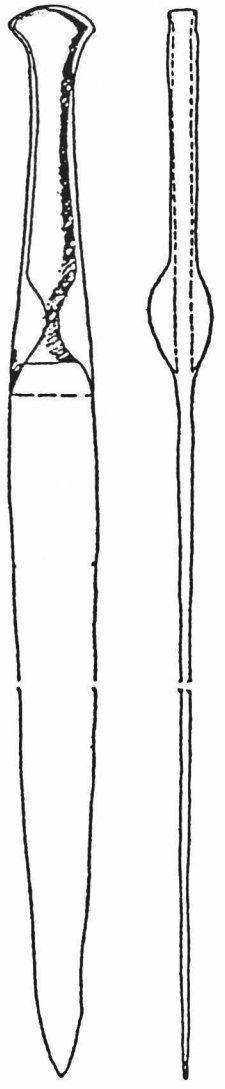


Fig. 04.4 Sword with conically shaped hilt.

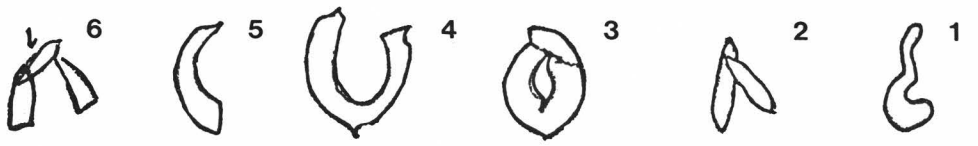


Fig. 04.5.1 Drawing of the inscription to illustrate toolmarks. A crescent shaped tool was applied twice to make letter 3 and 4, and once to make letter 5. The tool used to make letter 2 was also applied to form the upperpart of letter 3. A third tool was used for letter 6.

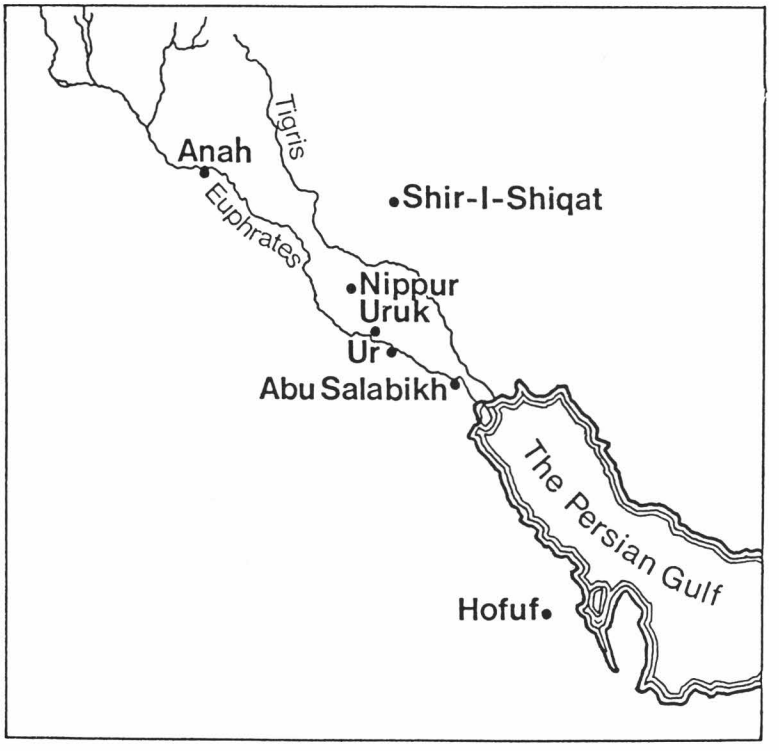


Fig. 04.5.2 Distribution map of Proto-Arabic inscriptions.

05. GLASS IN THE IRON AGE

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Ankara

In recent decades major advances have been made in the field of glass studies. The publication of numerous catalogues and technical treatises has greatly enhanced our understanding of glass in antiquity (see Harden 1984). Excavations, too, continue to produce startling new material; in particular, the work of Prof. George Bass at the two shipwreck sites of Serçe Limanı and Ulu Burun off the south-west coast of Turkey has made important contributions to our knowledge at both ends of the chronological spectrum (Bass 1984; 1986: 281-2, illus. 15-16; 1987: 294). The ever-increasing quantity of literature, however, presents a problem in itself, especially to the non-specialist (see Moorey 1985: 194-229). It is, therefore, my intention here to offer an interpretation of the present state of research in the study of glass from the first half of the First Millennium BC, concentrating on the glassmaking centres of Mesopotamia and Phoenicia and, wherever possible, relating this to the evidence from Anatolia.

Introduction

At first glance it might seem impossible to refer at all to the existence of glass in the early Iron Age since no firm evidence has yet been found to prove that glass was being produced during that time. In the late Bronze Age a thriving industry had existed in western Asia, whence glass had most probably originated, but after the collapse of the great empires there was a lengthy gap in glass production in both Mesopotamia and Egypt. This is not to say that glass was completely unknown in the period between the end of Bronze Age manufacture and the appearance of Neo-Assyrian glass. Most valuable here is the work of Leo Oppenheim on the literary evidence for glassmaking both in the Middle Babylonian cuneiform texts and in the Neo-Assyrian tablets from Nineveh (Oppenheim, Brill, Barag and von Saldern 1970: 9-101). A few fragmentary texts from Boğazköy also reveal the interest of the Hittites in recording information on glass recipes, although no-one has tried to identify any glass as Hittite per se (Oppenheim, Brill, Barag and von Saldern 1970: 67-8, Pl. 10; Oppenheim 1973: 11). It is believed that these texts offer a thread of continuity stretching across the four-century gap in the archaeological record. Early glass objects, too, were kept as precious keepsakes and heirlooms during this period, as is shown by the finds of mosaic glass in the citadel at Hasanlu, which was destroyed in the late ninth century BC (Barag 1985: 38 and n. 87). It remains, however, an open question as to whether the craft of glassmaking was practised even on a small scale between the twelfth and eighth centuries BC. The 'dark age', therefore, presents a field inviting further study in the light of future discoveries.

When glassmaking does re-emerge, the products appear in a variety of new forms and with different functions and techniques. Indeed, one recent study has revealed a change in the chemical composition of glass after about 800 BC, from a high to a low magnesium content, thereby indicating a change in the source of the raw material used (Henderson 1985). Very little remains, however, to indicate the presence of early glass factories in Mesopotamia or elsewhere in western Asia. A fragment of an opaque turquoise blue 'segmental' glass ingot was found in the N.W.

Palace at Nimrud and seems to date from the seventh century BC, but other ingots from Nimrud, in opaque red glass, are probably no earlier than the Achaemenid period (Oppenheim, Brill, Barag and von Saldern 1970: 223 no. 37a; Barag 1985: 108-109 nos. 166-167, Fig. 12 and Pl. 19). Objects such as these deserve closer attention, particularly in the light of the exciting finds at the Ulu Burun shipwreck. Ingots can not only tell us something about glassmaking centres but also about the trade in raw glass and the diffusion of production to local workshops far from the sources of supply. These possibilities must be kept in mind when looking at the various types of glass made during the Iron Age.

I will now discuss each group of glasses in turn.

Glass Inlays

The earliest use of glass on a large scale in the First Millennium BC occurred on Phoenician ivories. The glass was used as an inlay for embellishing and accentuating details of figures and floral designs and gave the ivory a polychrome appearance. A very important collection of glass inlays was excavated with the ivories at Samaria, but others have been found at Arslan-Taş, Hasanlu, Nimrud and Zincirli (Oppenheim, Brill, Barag and von Saldern 1970: 224 nos. 39-41, Figs. 36a-e; Barag 1985: 71-2 nos. 53-54, Pl. 7 and colour Pl. C). They include both monochrome and mosaic-glass inlays, and they date from the first half of the eighth century BC. The theory has recently been propounded that the monochrome inlay pieces were cast by the ivory carvers themselves, while the mosaic-glass inlays, since their preparation required considerable skill and training, were probably made by specialist glassmakers (Barag 1983; see also 1985: 52). It remains uncertain whether the two types of inlay were made by Phoenician craftsmen from local sources or, alternatively, were imported either in a raw or in a finished state from elsewhere.

In the same grouping mention should be made of the lead statuette from Toprakkale whose robe is decorated with numerous small squares inlaid with red mosaic-glass plaques and with a fringe of opaque red monochrome inlays (Barag 1985: 72-3 no. 55, Fig. 5 and Pl. 8; see also Mitchell 1983). Whether the red glass reached Urartu from Assyria or elsewhere is unknown, but the use of inlays, together with the style of the garment and of the figure's hair, indicate that this object, too, dates from the eighth century BC.

Core-formed Vessels

Glass vessels make their reappearance soon after the initial production of the ivory inlays. In Mesopotamia this took the form of a revival of the core-formed industry of the Second Millennium BC (Harden 1981: 51-2: Barag 1985: 54-5). Its recommencement has been dated to the second half of the eighth century BC. A few fragments were found at Nimrud in the Burnt Palace and Fort Shalmaneser, and both complete vessels and fragments were found at Ashur, Sultantepe, Babylon, Nippur and Ur. These core-formed vessels were apparently not as highly-prized as the cast and cut vessels to be discussed below, since they occur more frequently in private graves than in association with the royal palaces. The vessels were, however, exported in the seventh century to Iran and numerous examples of a local Neo-Elamite industry at Susa are clear imitations of Mesopotamian types. Other isolated core-formed vessels have been found at the Urartian site of Karmir Blur, as well as in Syria and Palestine.

One type of Mesopotamian core-formed vessel, an alabastron with elongated, almost cylindrical body, deserves special attention. One complete specimen was excavated at Ashur and fragments of such alabastra are known from Nimrud and Nippur (Oppenheim, Brill, Barag and von Saldern 1970: 155 no. 8 and Fig. 44; 155-6 nos. 1-2 and Fig. 45; 158 no.2 and Fig. 56. For another fine example from Iraq, see Goldstein 1979: 104 no. 204, Pl. 12). It is conceivable that one of only four core-formed fragments so far recovered from the Institute's excavations at the site of Tille on the Euphrates belongs to this Mesopotamian group (**Pl. 05.1**, bottom right) (1). A significant number of these vessels were found on the island of Rhodes; for example, four alabastra in the British Museum all come from Camiros (Harden 1981: 56-7 nos. 78-81, Fig. 5 and Pl. 7; Barag 1985: 69-70 nos. 48-51, Pl. 7 and colour Pl. B). This suggests that either they reached Rhodes from Mesopotamia or they were produced in Rhodes by migrant Mesopotamian craftsmen. Rhodes, indeed, became the main centre of production for core-formed vessels in the mid-sixth century, and it was from there that the craft spread through the Mediterranean and Black Sea regions (Harden 1981: 52-3; see also Weinberg 1966).

Glass for Composite Statues

In the eighth and seventh centuries BC blue glass was frequently used as a substitute for lapis lazuli in making parts of composite statues. These parts were cast in moulds. The mace-head in the British Museum, for example, was probably cast in a one-piece mould and then finished by grinding and polishing (Barag 1985: 74-5 no. 60, Fig. 6, Pl. 8 and colour Pl. B). Other parts, such as beards and wigs, required a more elaborate technique and were probably made by the lost-wax process (Barag 1985: 75-7 nos. 62-9, Pls. 8-9 and colour Pl. C). In the absence of any precise data, it is safest to attribute all of these pieces to the eighth-seventh centuries BC. They demonstrate that Mesopotamian glassmakers had reached a very advanced level of technical skill by this period, and it has been suggested that these composite statues should be regarded as the source of inspiration for the chryselephantine statues of classical Greece, and especially the famous works of the Athenian sculptor Pheidias.

Cast and Cut Glass Vessels

By far the most interesting type of Iron Age glassware, in terms of technique, decoration and intrinsic value, is the group of cast and cut vessels. They differ considerably from glass vessels of the Bronze Age in their appearance and technique of manufacture. The vessels were cast in moulds, probably by the lost-wax technique and then finished by grinding, cutting, drilling and polishing - techniques borrowed from the makers of stone vessels. Luxury metal and stone vessels frequently served as prototypes not only for shape, but also for the horizontal grooves and ridges that characterize some of the vessels. In contrast to the majority of earlier glass, these were monochrome vessels, usually made in translucent, almost colourless or light greenish glass. The glassmakers were evidently imitating rock-crystal and or transparent stones and not the opaque lapis lazuli or turquoise that had attracted craftsmen in the Second Millennium BC. This preference for translucent glass shows, most importantly, a new awareness of the special qualities of the substance with which they worked.

The largest and most important group of cast vessels comes from the palaces of Nimrud. It includes the unique squat alabastron bearing the name of Sargon II (721-705 BC) and four hemispherical bowls, all of which were discovered by Sir Henry Layard during his excavations in the years 1845-1847 (Barag 1985: 60-

3 nos. 26, 28-31, Figs. 2-3, Pls. 3-4, colour Pls. B and C) (2). The size and variety of this Assyrian industry was revealed by fragments of a further 100-140 bowls excavated at Nimrud by Sir Max Mallowan between 1949 and 1963. The Sargon vase provides a *terminus ante quem* of 705 BC for the beginning of these cast and cut luxury glass vessels, although most of the Nimrud fragments were found in the debris of the 612 BC destruction. In addition to the plain bowls, some pieces have superb wheel-cut decoration and two fragments of another bowl reveal inlaid and painted decoration (Oppenheim, Brill, Barag and von Saldern 1970: 219-221 nos. 22, 25-8, Figs. 20-4; Lehrer 1974; Barag 1985: 65-6 nos. 38-40A, Fig. 3 and Pl. 4). These stand as examples of the consummate skill of the glassmakers of the time, combining the use of lost-wax casting, cutting painting and mosaic-glass inlaying.

Another important if solitary find is the fine bowl (*phiale mesomphalos*) from tumulus P at Gordion, in which it was deposited at the end of the eighth century BC. It has a pattern of thirty-two radial petals and is the earliest surviving complete example of a glass vessel with cut decoration (von Saldern 1959: 23, 25-7 and Figs. 1-2; Harden 1968: 56-7 and Pl. VI.B-C). One may compare a fragment in the British Museum that probably comes from excavations in Mesopotamia during the last century (Barag 1985: 66-7 no. 42, Fig. 3 and Pl. 5). The shape and decoration of the Gordion bowl mirror exactly those of metal bowls found in contemporary Assyrian and Phoenician contexts, not those of local Phrygian manufacture (von Saldern 1959: 26, esp. nn. 9 and 10). While the Nimrud collection, together with isolated finds from Kuyunjik and Khorsabad, show that such luxury glass ware was used extensively by the Assyrians, the Gordion bowl demonstrates the diffusion of the vessels to a wider market. Two other examples, both hemispherical bowls similar to those from Nimrud, may be cited first; one was found in the cemetery of Fortetsa near Knossos, Crete, in a tomb dating from 735-680 BC, while the other, in blue glass, came from the Tomba Bernardini at Palestrina (Praeneste) in central Italy (Fossing 1940: 39, Fig. 23; von Saldern 1959: 31-2 nos. 11-12, Figs. 9-10). More common, however, are closed receptacles - vases and, especially, *alabastra*; for example, the *dinos* acquired on the Cairo market and now in the Corning Museum of Glass (Goldstein 1979: 99-100 no. 196, Pls. 11 and 37; see also Gorelick and Gwinnett 1986). An Egyptian provenance may seem unusual, but a fragment of another cast and cut vessel dating from the mid-eighth to mid-sixth century BC was found in the 'Treasury' at Napata-Sanam in Nubia (Sudan) (see Barag 1985: 64-5). Similar in shape to the Corning *dinos* is a smaller vase in the Villa Guilia, also from Praeneste, and from the Aliseda Treasure in Spain there is a jug of typical Phoenician shape bearing a pseudo-Egyptian hieroglyph (von Saldern 1959: 33-4 nos. 15-6, Figs. 13-14). The *alabastra* are known principally in the West, although their place of manufacture remains uncertain; the largest example, measuring 22.7 cm in length, probably came from Italy, while two others, one from Puteoli (Pozzuoli), the other from San Martino near Ravenna, also have an Italian provenance (Goldstein 1979: 102 no. 200, Pls. 12 and 37; Barag 1985: 67-8 no. 44, Fig. 4, Pl. 5 and colour Pl. B; Oppenheim, Brill, Barag and von Saldern 1970: 227 no. 54a). These glass *alabastra* are closely related in shape to Egyptian examples in alabaster that date from the mid-seventh to sixth century BC (3).

Finally, there is a small number of glass cosmetic palettes from Palestine, notably from the site of Megiddo (Barag 1982). They closely resemble stone palettes that are relatively common in the same area; Megiddo itself has yielded thirty-five such examples. There is no evidence that glass was made in Palestine in the eighth to seventh centuries BC. The glass used for making the palettes is similar to that used for the cast and cut vessels described above. These, too, are

believed are the products of Phoenician craftsmen, as indeed the stone and occasional faience palettes are thought to be.

Although it has long been recognised that these vessels form a coherent group with a fairly well-defined chronology, the place of origin has been the subject of much controversy. In a recent thorough reappraisal of the evidence Prof. Dan Barag came to the conclusion that the industry should be attributed to Phoenicia or, in the case of the Nimrud pieces, to Phoenician craftsmen working for the royal palaces in Assyria (Barag 1985: 54). So it would appear that the Phoenicians played a major role in the production of glass in the Iron Age. The eclectic nature of Phoenician art is reflected in the ability of its glassmakers to supply a luxury product to a variety of different markets. The one exception to this general rule being the Gordion bowl, which must surely be a gift to a Phrygian prince from the royal court of Assyria.

Notes

1. The fragment, in translucent dark blue glass with an opaque white trail forming a feather pattern, measures only 10 mm long and 17 mm wide, with a thickness of between 2.5 and 3 mm. The other three fragments, again very small and difficult to identify with any certainty, would appear to belong to the later Mediterranean series of the sixth to third centuries BC.
2. The Sargon vase has a unique shape for a glass vessel. It may be compared with an Egyptian rock-crystal *alabastron* inscribed with the cartouche of a pharoah of the twenty-third dynasty (750-700 BC) (see Lehrer 1974: 13 and Fig. 10).
3. Other *alabastra* in greenish glass have a shorter, ovoid body. These may be attributed to the Achaemenid period (see Oppenheim, Brill, Barag and von Saldern 1970: 227 nos. 52-4, Figs. 47-49; Barag 1985: 68 no. 45, Fig. 4 and Pl. 5). They find their closest parallels in alabaster vessels from the royal cemeteries of Kush dating from the fourth century BC (see Dunham 1955: 251, Fig. 195: 104 and Pl. LXXXI).

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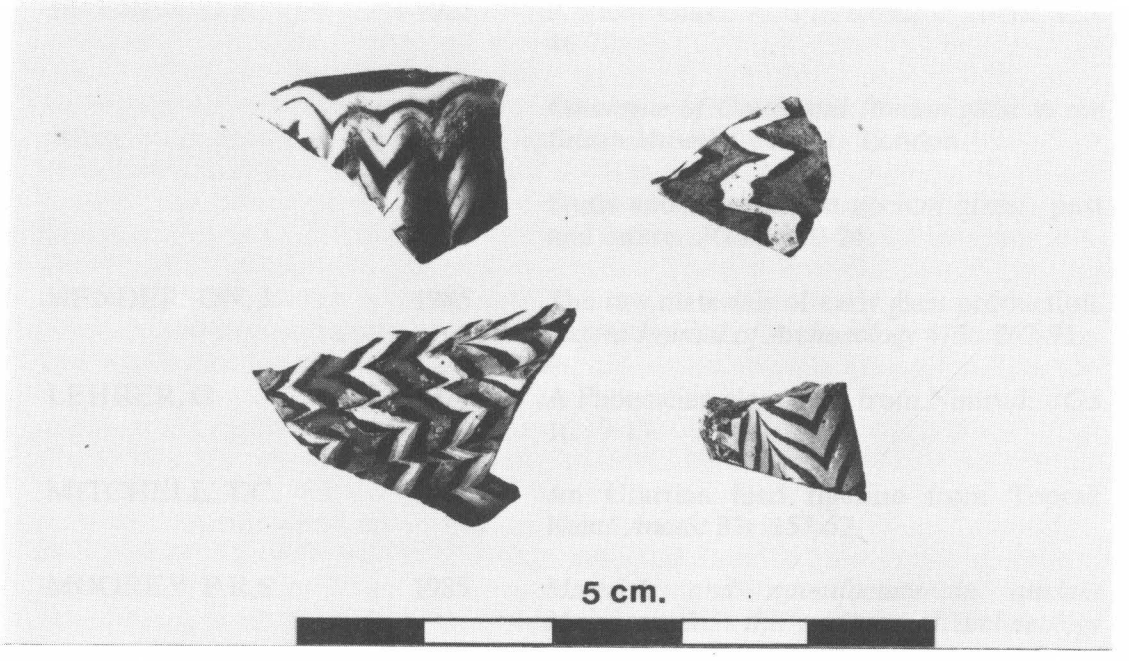

Pl. 05.1 Core-formed fragments from Tille.

06. THE CONSTRUCTION AND PRODUCTION OF A MONUMENTAL BRONZE CANDELABRUM OF KING MENUA OF URARTU

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The candelabrum in the Israel Museum collection can be precisely dated, on the evidence of the inscription, to the reign of King Menua, c. 810-785 BC. The object is not unique: a number (three) were found at Karmir Blur. Another was discovered at Toprakkale (according to the inscription, "from the inventory of Rusa"). A fifth example was found at Altıntepe and a sixth possibly at Kayalıdere.

The construction is here described in detail, together with an analysis of the metal.

The candelabrum we shall discuss in this paper (**Pl. 06.1**) is in the Israel Museum collection (inv. no. 72.13.173). It is of monumental size, measuring around 1.80 m. On its tripod base (c. 0.3 m high) rests a column, 0.108 m in diameter and 1.50 m high. The three tripod feet are arches terminating in bulls' hooves. Nailed with rivets to the top of each arch is a small recumbent lion, its mouth open as if to roar. The column consists of six cylindrical sections and six foliate ring capitals. Five such capitals, regularly spaced, are located at the joints of the sections. A sixth capital was fixed to the upper end of the column, on top of which a lamp-bowl was presumably placed.

The top cylinder bears an inscription of King Menua, dedicating the candelabrum to the god Haldi, chief god of the Urartian pantheon. The inscription, written in cuneiform letters in the Urartian language, is in four lines which run around the entire circumference of the shaft. Each line, 10-12 mm wide, extends between two engraved lines.

The inscription reads (1):

1. **To (god) Haldi, the Lord, this dashusi (= candelabrum?)**
2. **Menua son of Ishpuini**
3. **presented, with the might of (god) Haldi**
4. **Menua, the mighty king, king of the land of Biainili (=Urartu)**

Thus the candelabrum can be dated precisely to the reign of King Menua, c. 810-785 BC.

This candelabrum is not the sole example of its kind among finds from Urartu. A number of candelabra were discovered in the excavations at Karmir Blur. In his report on the excavation, Piotrovsky describes

> **"three iron lamp-stands that have been found at this site. Their long, narrow shafts, which rest on a tripod of curved iron rods, support a plain bowl; the lower edge of the shaft ends in a knob".**

The illustration of one of the three examples (1.45 m high) published by Piotrovsky (1950: 60-70, Fig. 42; 1967: 36 n. 8) indicates that these are much plainer specimens. Another preserved example from Karmir Blur, made of bronze, is recorded as 0.43 m high (this figure appears to be erroneous; it is probably 1.43 m). The shape of its tripod greatly recalls that of our candelabrum (Piotrovsky

1969-1970: Pl. 72). The foliate ring-capitals, however, which form part of the decorative scheme of the shaft of Menua's candelabrum, are missing in this example. Except for its height there is no description of the object and the structure of the shaft is not clear. Was it made in one piece or in several?

Another candelabrum of the tripod type, far more elaborate than the Karmir Blur examples and well known from the literature, was found in the course of the German expedition to Toprakkale, undertaken in 1885 under the leadership of Lehmann-Haupt (1907: 93-95, Fig. 63). In 1903 the candelabrum was acquired by the Museum für Kunst und Gewerbe in Hamburg, where it lay forgotten for nearly sixty years, until rediscovered in 1960 in the museum's storerooms. It then underwent laboratory treatment, restoration and repairs. During the cleaning, four short lines of a cuneiform inscription engraved on the shaft came to light. The candelabrum and its inscription were then published and it was declared "one of the most remarkable monuments of ancient metallurgy to have survived into our times" (Hoffmann 1960: 896-897; 1961: 143-148).

The candelabrum is about 1.18 m high (2) and is surmounted by a flat bowl inscribed on its rim with what seems to be an inscription identical to that on the shaft. The shaft rises from a solid core cupped at the bottom by a fluted bowl. Four foliate ring-capitals are spaced at regular intervals along the shaft. A fifth capital, somewhat larger and differently styled, is set at the base of the column, just above the tripod. The legs consist of wrought-bronze rails terminating in zoomorphic junctures, namely, heads of lions with their jaws fastened on bulls' legs. Finally, recumbent *Lamassu*, or winged bulls with human faces turned outward, were fastened to the shoulder of each leg by three rivets.

When the Toprakkale candelabrum is compared with that of Menua, it becomes clear that the zoomorphic junctures, which constitute a sculptural feature of the tripod feet are missing in the latter. This feature is replaced by a trefoil section set at the front of each leg just above the bull's foot (**Pl. 06.4.1**). On the other hand, Menua's candelabrum is much more monumental (see comparative measurements above) and the sculptural quality of the lions far surpasses that of the *Lamassu* figure in the Toprakkale candelabrum.

Although the Toprakkale candelabrum was found within the precincts of a temple of Haldi, its four-line cuneiform inscription bears no mention of its dedication to the god Haldi. It names Rusa, a king of Urartu, as owner (3):

1. **Rusa's**
2. **ta-na-a?-si (=candelabrum?)**
3. **from Rusa's**
4. **inventory**

Since the inscription omits the patronymic, it is impossible to state with certainty to which of the three Urartian royal figures named Rusa the inscription relates. Is it Rusa I (*c.* 730-714/713 BC), a contemporary of Sargon II of Assyria and founder of the royal city of Rusahina, "City of Rusa", which is modern Toprakkale? Or is it rather Rusa II or Rusa III, who ruled in the 7th century BC, and of whom inscribed objects have been found in Toprakkale?

In any event, this candelabrum should clearly be dated some 80 to 150 years later than Menua's. No wonder, then, that there are marked differences in workmanship, since it is becoming increasingly evident that Menua's reign represented an apogee of Urartian art (4), while the period of Rusa I and certainly that following him, represent a stage of decline.

A survey of Urartian candelabra must include another example, from Altın Tepe, found in the gallery of the temple, close to the entrance, and of which only the tripod remains (Özgüç 1969: 45, Fig. 43 and 83, Pls. 36-41). The tripod is of type different from those described above. It consists of three bronze arms, resting on three feet decorated with foliate capitals. On each arm is a recumbent, roaring lion of ivory. It should also be noted that a number of fragments and objects which have been published may be parts of similar candelabra, such as the leg of a piece of furniture in the form of a bull's hoof discovered in a tomb at Alişar (Piotrovsky 1967: 82, Fig. 59). It is also reasonable to suggest that the bronze recumbent lion found at Kayalıdere also belongs to a tripod of a candelabrum (Burney 1968: 75, Pl. 9: 9 and 10, Fig. 8).

If we consider the find spot of a number of candelabra and the inscription on our example, there is every reason to suppose that the candelabrum was part of the temple furnishings. Such an assumption, significant for Urartian cult and ritual, should be a subject of further investigation. It is also worth considering whether there is a relation between the creatures crouching on the tripod feet and the deity to whom the candelabrum was dedicated. Another aspect relating to the lions on our candelabrum is the stylistic development of the Urartian lion and the chronological implications of this development (Akurgal 1968: 56-62, Pls. 37-39).

These and other subjects point to the profitability of further research related to this important object. It appears to us, however, that the technological and metallurgical aspects involved in the manufacture of this article are not only fascinating but also are highly important for the understanding of Urartian metal industry and are worthy of separate discussion and presentation.

THE CONSTRUCTION

The candelabrum reached the Israel Museum in three sections. Two of these are sections of the column which, joined together, form the complete shaft (the shaft was broken near the fourth capital from the top). The third part is the tripod (**Pl. 06.3.2**). The dismantled state enabled us to study the inside of each part and examine its structure. On the basis of this examination and X-ray radiography carried out by the laboratories of the Nahal-Sorek nuclear reactor, we drew four illustrations (**Figs. 06.1.1-2** and **06.1.3-4**), which show the interior and exterior of the column, and a fifth (**Fig. 06.2**) which shows the manner by which the feet were attached to the central section. These illustrations clarify the structure of the candelabrum.

The Column

This consists of six units, composed of cast metal sheets in the form of rectangles 0.25 x 0.22 m and *c.* 2.3-3 mm thick, which were then rolled into cylinders about 0.108 m in diameter. Their cylindrical shape was achieved through a hammering process followed by annealing. A bronze strip, 0.035-0.040 cm wide, was attached with two rows of rivets along the seam on the inside of the cylinder (**Pl. 06.2.1**). The identical method was used to join the cylindrical sections, *i.e.* by bronze strips riveted to the lower rim of each cylinder and joined to the upper rim of the cylinder below it (**Pl. 06.2.1**). The vertical seams and nailheads of the strips binding the cylinders are visible on the surface of the column (**Pl. 06.2.2**). In contrast, the horizontal seams of the union of two cylinders are hidden by foliate ring-capitals. Thus, in addition to their being an impressive decorative element, these foliate rings also perform here a functional role in the construction of the

column, namely, that of covering and strengthning the joints between the cylinders, thereby creating the impression of a single piece.

The ring-capitals, about 0.175 m in external diameter, are riveted to the shaft by nails hammered into the capitals at the point where the capital is relatively thin, that is, above the torus-like circle at the base of the capital (see **Figs. 06.1.1-4**). The nails, which protrude visibly towards the inside of the shaft, are longer than the rivets used for the connecting strips. The difference between the two types of rivets may point to the fact that the rivets of the connecting strip were hammered against a hard surface placed inside the cylinders (see below, discussion of the examination of a rivet), while the longer rivets that attached the capitals to the column apparently penetrated a wooden pole inserted into the column after it had been assembled. The wooden pole has not been preserved but the hollow interior of the shaft is clearly visible (**Pl. 06.3.1**).

The wooden pole was inserted into the hollow of the column and its lower end was set into the ring protruding above the tripod (**Pl. 06.3.2**). The pole apparently penetrated as far as the hollow of the bowl suspended from the centre of the tripod (**Fig. 06.2**) which was intended to reinforce the large, heavy metal shaft, its weight, *c.* 43 kg, thereby helping to stabilise the candelabrum. It is doubtful, however, that the ring, which is 4 mm thick and protrudes 22 mm above the tripod, could prevent the heavy column swaying on the tripod. In order to protect the base of the shaft from cracks created by such oscillations, its weakest spot - the lower rim - was therefore reinforced by a bronze ring 20 mm wide (**Figs. 06.1.1, 06.1.3**).

This description of the construction of the column invites comparison with Rusa's candelabrum as described by Hoffmann (1960: 896):

> **"The shaft is not cast solid but rolled from a single plate of metal. Several horizontal pins are set through the shaft at regular intervals to prevent warping. Four rings of stylized palm leaves transform the shaft into a sacred tree...they are cast by the lost-wax process and therefore differ from one another in small details. The inner diameter of these rings was minutely calculated - they cleared the shaft while still red hot but on contracting took such a firm grip that no other fastening was required".**

It should be recalled that the shaft of the Rusa candelabrum is around 1 m high with a diameter of 0.024 m; the external diameter of the four capitals is around 0.048 m, as compared to Menua's candelabrum which rises to a height of 1.5 m. The shaft of the latter is 0.108 m in diameter; with the foliate capitals have an outer diameter of 0.175 m. Naturally, in the Rusa example, the contraction of the foliate ring capitals on cooling was enough to secure the seam of the shaft without reinforcement by rivets. In the Menua candelabrum, however, the heavy weight of the capitals required securing with rivets, whereas in the technique used for the Rusa candelabrum, the contraction of the heavy capitals on cooling from red heat might in this case have caused the shaft to warp.

The technique of joining with riveted strips along the seam is known from a large number of Urartian furniture pieces, mainly bronze sleeves that were applied to wooden parts. Many more objects of this kind are found today in various museums and private collections (5) and several have been published in the last decade (Burney 1966: 109, Fig. 23: 1-2; Seidl 1980: 69-72, Figs. 6-9; Haerinck and Overlaet 1984: 69, Fig. 8). Not one example, however, exists to parallel the Israel Museum candelabrum, which, since it is completely preserved, reveals the

entire method used in manufacture. This method, so typical of Urartian bronzework, is unknown in other Near Eastern metalworking centres during the First Millennium BC.

The circlet of drooping leaves is a motif typical of Urartian furniture. The hallmark of Urartian foliate capitals is the raised outline of the circumference and the central rib of each leaf. The only foliate rings (known to the present author) that differ in style are those occurring on the shaft of the Rusa candelabrum. The foliate ring capitals are generally attached to the feet of furniture or to the central shaft supporting tables or table-altars - an element inspired by Assyrian and Syrian furniture of the First Millennium BC (Kyrieleis 1969: Pls. 1, 6, 11: 3). Most of the foliate rings discovered on Urartian sites or known from private collections are relatively small and are made of thin-gauge sheet metal (6). A number of capitals, however, originating from the temple of Haldi in Toprak-kale are part of a solid casting for the legs of a throne (Piotrovsky 1967: Figs. 10, 11). Similar capitals served also as crowns for the imaginary creatures incorporated in the structure of the throne (Piotrovsky 1967: Figs. 9, 12). These capitals, which are also larger, are characterised by a kind of torus at their base, like the one found in the foliate capitals of Menua's candelabrum. This element is borrowed from actual architectural capitals transformed into a decorative motif for furniture (Merhav 1980: 104-105, Pl. 5: 1-6).

The foliate capitals are cast by the lost-wax process. Their uniformity, although not conclusively determined, points to the use of a master mould, made of wood or stone, in which the capital is carved in negative. Into this mould, molten wax is poured, producing the wax pattern of the capital. The wax pattern is then invested with a ceramic coating which forms the casting mould. Molten metal is poured into this mould, replacing the wax which melts and runs out of the mould. The ceramic mould is then broken to release the metal cast. The master mould of the toliate capitals must have been composed of several parts, including the core for the shaft. It had to be taken apart when the wax pattern was freed from the master mould.

We have deliberately chosen to describe in detail the stages of casting the capitals, since the procedure often remains obscure. The description of the casting process of the Rusa candelabrum may serve as an example. The author speaks of casting by the lost-wax process, where the mould was necessarily destroyed in each casting. This technique, he believes, accounts for the fact that the capitals differ in small details. We, on the other hand, believe that here also a wood or stone master mould was used from which the wax patterns of the capitals were produced; the small differences of the final casts would seem to be due to the final working of the details.

The Tripod

The tripod is basically a massive, cast piece, weighing, together with the lion figurines crouching at its feet, c. 35.5 kg. The two principal components of its structure are: (a) three arched-legs; (b) a central section of complex shape, which consists of a fluted bowl, surmounted by a torus-like circle above which is a flat ring to which the tripod legs are attached (**Pl. 06.4.2**). Above this section rises an additional, high but smaller ring, on which rests the tall, heavy shaft of the candelabrum.

X-ray radiography reveals that the legs, with their rectangular upper section terminating in bulls' hooves, are cast solid around a metal rod running through the

length of the foot. The bottoms of the bulls' hooves reveal the tip of the rod. The rod protrudes from the rectangular upper end of the foot and was designed to fit the opening in the central part of the tripod (**Fig. 06.2**).

Presumably, the casting of the arched-legs around a metal nucleus was carried out by the lost-wax process. The uniform shape of the bulls' hooves points again to the use of a negative wood or stone mould for producing the wax pattern of the legs.

It is certain that the jointing of the legs to the central section was not strengthened by rivets but rather through the casting method. It appears that the protruding ends of the rods penetrated into the central section when still shaped in wax and were fixed to the metal in the process of casting the central section. This method was used instead of soldering. Soldering large, massive legs such as those of the candelabrum required expertise in the knowledge of soldering materials and techniques, knowledge which the metalworking artisans of this period probably did not yet possess.

Hoffmann's description (1960: 896) of the method for producing the legs of the Rusa candelabrum reads:

> **"The legs were originally attached over spigots and fastened to these with pins. They consist of wrought bronze rails wedded to "zoomorphic junctures" - lions' heads and bulls' feet-cast by the cire perdu process. The mould was of necessity destroyed with each casting, which accounts for the fact that no two of the three lions' heads are exactly alike".**

This description does not spell out how the legs were fastened with rivets to the centre of the tripod. In our view, the casting technique was that described above for the Menua candelabrum.

As we have noted, the central section of the tripod was also cast. Although it remained partially hollow (**Fig. 06.2**), it is a heavy metal mass intended to stabilise the tripod. We cannot say conclusively whether this section is of one piece, or whether the uppermost ring is a separate piece. In any case, it is beyond doubt that there are no riveted parts on this section and if any joint was made it took place during the casting process itself, as described above.

(R. Merhav)

THE METALLURGICAL STUDY

Samples taken from the artifact named 'candelabrum' described above were subjected to several metallurgical studies including:

1. Scanning Electron Microscopy (SEM)
2. in-situ dry chemical analysis by Electron Dispersion of X-rays (EDX)
3. hardness tests (Hv).

These methods were employed in order to evaluate the following:

a. microstructure of the metallic components composing the whole artifact with a view to a possible thermomechanical history
b. chemical composition of the sound ('healthy') metallic alloys.

The following section presents some main results of this study.

Experimental

From already fractured parts samples were taken and designated as:

1. C-1: the longitudinal connecting strip including half the circumference of a hole through which a fastening rivet was introduced in the original
2. C-2: a fastening rivet
3. C-3: the shaft which composes the main body of the candelabrum.

The samples were first set in a mounting resin and then polished, in the longitudinal transverse direction, down to 1 micron alumina polishing powder. After polishing the samples were etched with a suitable etching solution for microstructural observations.

The samples were studied in three different conditions:

a. in the as - received condition
b. in the polished condition
c. in the polished and etched condition.

Results

Micromorphology (Microstructure): **Pls. 06.5-7** show SEM micrographs of the polished and etched C-1, C-2, C-3 samples respectively. All samples have an equiaxed grain structure with evident traces of annealing twins.

The elongated secondary phases (that appear as inclusions) are parallel to:

a. the two main flat surfaces in samples C-1 and C-3
b. the central main axis in the rivet, sample C-2.

A deformed grains structure exists at the head of the rivet (**Pl. 06.8.1**) and at the edge of the hole in C-1 (**Pl. 06.8.2**).

Chemical composition: Table 1 summarises the results of chemical analysis of bulk (the term 'bulk' indicates area free from inclusions) and inclusions of several readings, with the calculated standard deviations.

Discussions and Conclusions

All the three specimens can be basically considered as 5-7% Sn (Tin) Bronzes containing a considerable amount of contaminating inclusions that were not removed during the preparation process of the alloy. (the word 'contaminating' is used in terms of present day metallurgical conceptions). These inclusions contain a relatively high amount of Zn (Zinc), S (Sulphur), and Pb (Lead), resulting in the presence of these elements in the bulk. They were probably not deliberately added as separate pre-alloying elements. Furthermore, the fact that Sn (Tin) concentration in the inclusions is relatively low on the one hand and high in the bulk on the other suggests that Sn (Tin) was a pre-alloying element added to Cu (Copper) during preparation of the alloy.

The existence of annealing twins in the bulk matrix indicates that the parts from which the samples were taken were subjected to heat treatments, at least in the final stages of their shaping. The fact that elongated inclusions, the shape of which is almost not at all affected by heat treatment, were found parallel either to the main flat surfaces (as in C-1 and C-3) or to the central axis in C-2 indirectly suggest that the parts were probably shaped in a series of reciprocal steps including

hammering and annealing, until an annealed net-shaped part, ready for assembly, was acheived.

The high hardness values of the rivet head and of the area close to the hole in the strip indicates that these specific locations were strain-hardened (**Tables 2, 3, 4**). This hardening is a result of hammering which induces plastic deformation in and a relative rise local hardness of the metal during the final stages in assembling these parts into the candelabrum.

(A. Ruder in collaboration with E. Manor and D. Elizer)

Notes

1. Our thanks are due to Prof. Haim Tadmor of the Hebrew University, Jerusalem, who read the inscription and provided the translation published here.
2. The height of the candelabrum is erroneously given in various publications as 1.365 m. This error originates from Lehmann-Haupt's description (1907: 93).
3. The inscription was published by Johannes Friedrich of Berlin (apud Hoffmann 1960: 896). It should be noted that the word candelabrum in Urartian is not yet known, and "ta-na-a?-si" of the Rusa inscription, as well as "da-šú-ú-si" of the Menua inscription have been tentatively translated as a "candelabrum", on the basis of the context only. We have no decisive proof, therefore, that the object before us indeed served as candelabrum. The inscriptions and their significance, however, are a subject to be treated separately.
4. In the 1970s and 1980s a large number of objects were published carrying inscriptions of Ishpuini and Menua. The design of these objects and their decorations throw new light on the high artistic standards and workmanship during this early period. The candelabrum without doubt exemplifies the high level of art at this time. This aspect has not yet found expression in the general studies of Urartian art published in the 1960s such as the works of Piotrovsky (1967), Van Loon (1966), Azarpay (1968) and Akurgal (1968).
5. Objects of this category can be seen in the collection of the Prähistorische Staatssammlung, München; the Römisch-Germanisches Zentralmuseum, Mainz, and also in the collections of the Israel Museum, Jerusalem.
6. See Burney 1966: 97, Fig. 20.3, Pl. 20.a; Barnett and Gökçe 1953: 167, Pl.17.6; Lehmann-Haupt 1907: 97, Fig. 68. This type of capitals is also found in the collections of the museums mention in note 5 and also in the Museum für Vor- und Frühgeschichte, Berlin: Frühe Bergvölker in Armenien und im Kaukasus, Berlin 1983, Fig. 30.

Table 1
Bulk and inclusions chemical composition of samples
C-1, C-2 and C-3 given in weight percent.
ND indicates: Not Detected

	C-1		C-2		C-3	
	Bulk	Inclusions	Bulk	Inclusions	Bulk	Inclusions
S(Sulphur)	1.0+/-0.8	21.6+/-11.0	0.25+/-0.5	16.3+/-12.6	1.4+/-1.7	20.6+/-11.0
Sn(Tin)	6.9+/-0.8	1.9+/-1.7	5.0+/-1.5	1.3+/-1.3	5.8+/-0.6	2.1+/-1.9
Fe(Iron)	0.7+/-0.1	0.2+/-0.4	0.4+/-0.1	0.6+/-0.1	0.6+/-0.1	0.6+/-0.2
Cu(Copper)	89.5+/-2.0	46.2+/-25.0	90.0+/-1.1	46.4+/-28.4	85.7+/-5.6	36.0+/-25.6
Zn(Zinc)	1.4+/-0.7	27.0+/-19.4	4.1+/-0.9	31.6+/-25.4	5.0+/-2.0	34.0+/-22.6
Pb(Lead)	0.8+/-1.2	2.4+/-3.1	ND	ND	1.5+/-2.0	6.4+/-10.7

Table 2*
The average hardness results of C-1

1	2	3
204 5 Hv	125 5 Hv	105 5 Hv

Table 2 represents hardness test results of C-1 at three different locations:

1 - Area adjacent to the hole through which the rivet runs.
2 - Area near the hole through which the rivet runs.
3 - Area at a distance from the hole through which the rivet runs.

Table 3*
The average hardness results of C-2

1	2
171 11 Hv	245 20 Hv

Table 3 represents hardness test results of C-2 at two different locations:

1 - Centre of rivet's main body.
2 - Head of the rivet.

Table 4*
The average hardness results of C-3

1
160 14 Hv

Table 4 represents hardness test results of C-3 at one location:

1 - Centre of the transverse cross section.

* All hardness tests were performed with the Vickers method; diamond indenter, 5 kg load.

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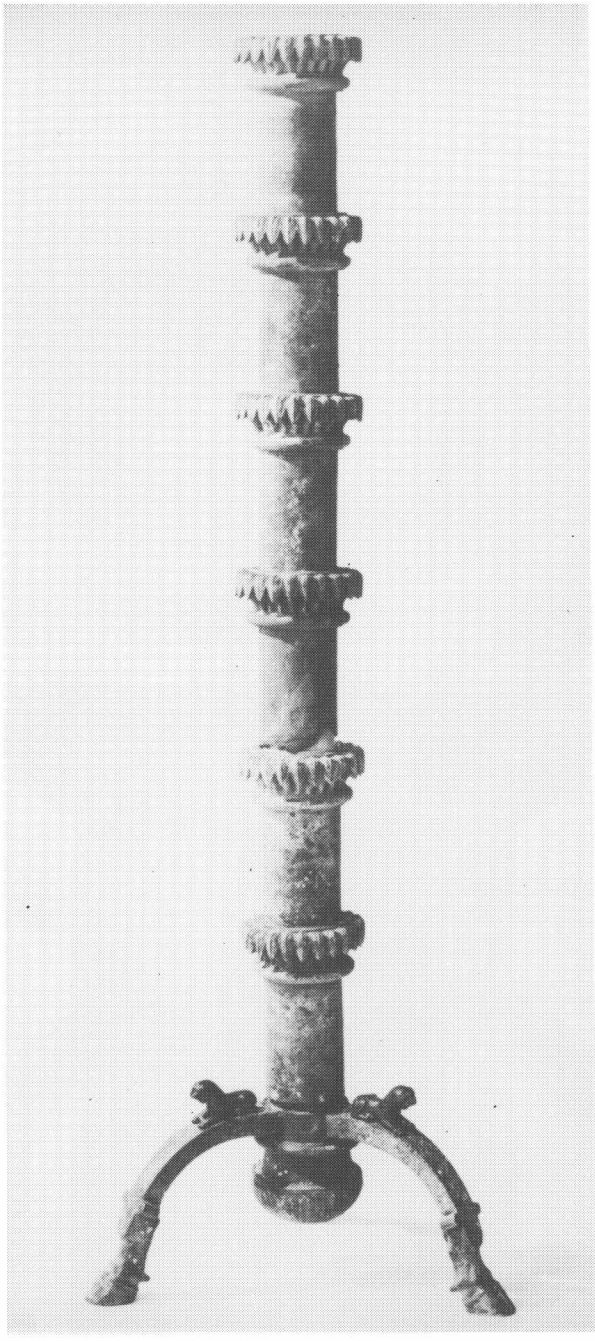
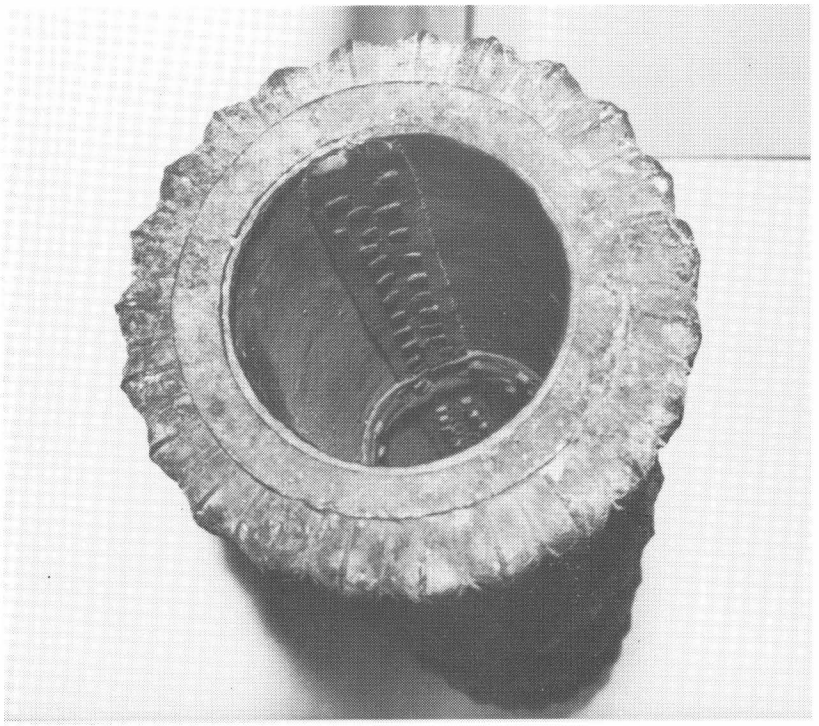
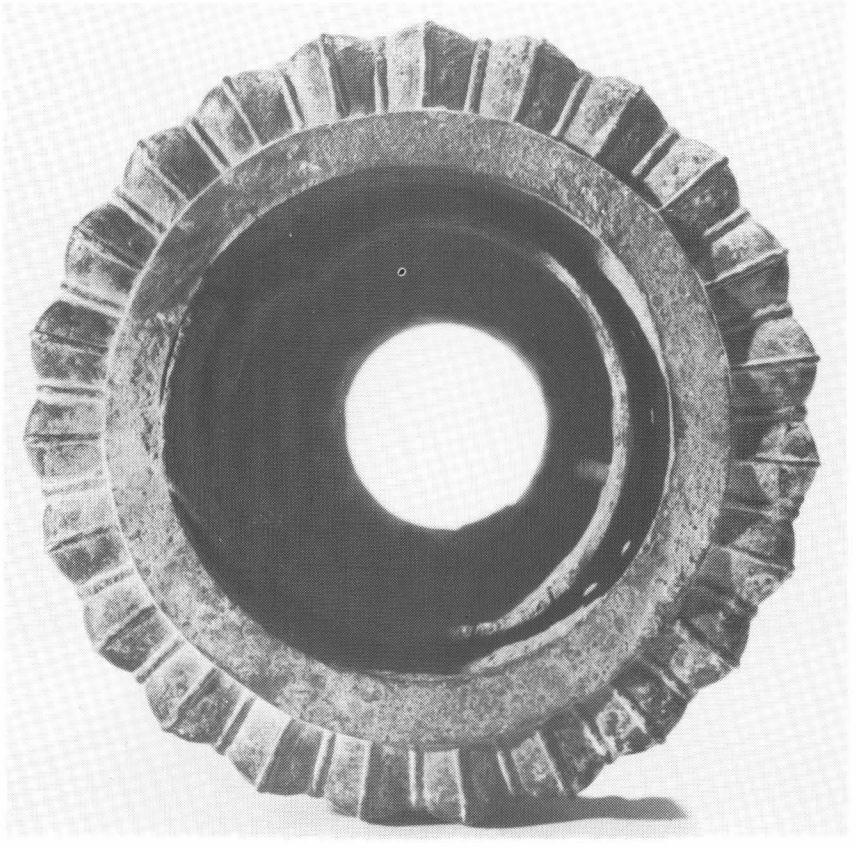


Pl. 06.1 Urartian candelabrum.

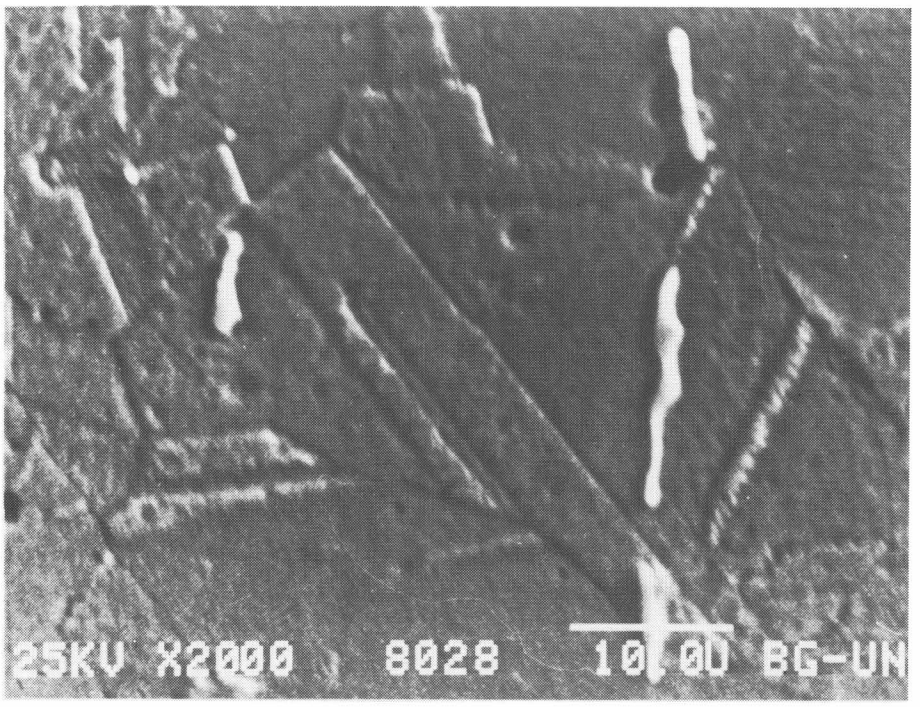


Pl. 06.2.1 Interior of the shaft.
Pl. 06.2.2 Exterior of the shaft.

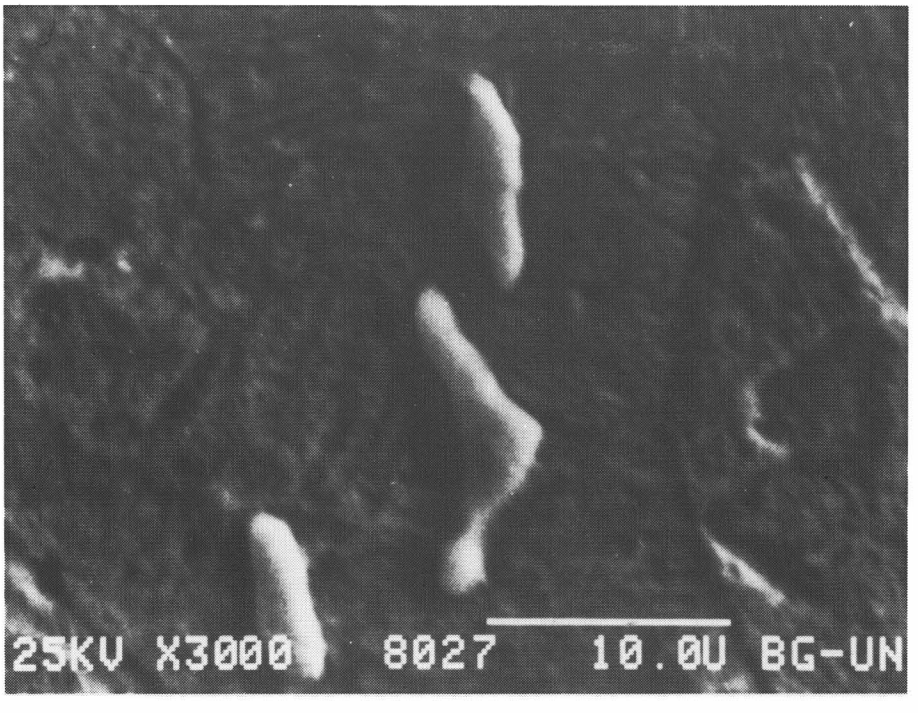


Pl. 06.3.1 Interior of the shaft.
Pl. 06.3.2 Tripod foot detail.

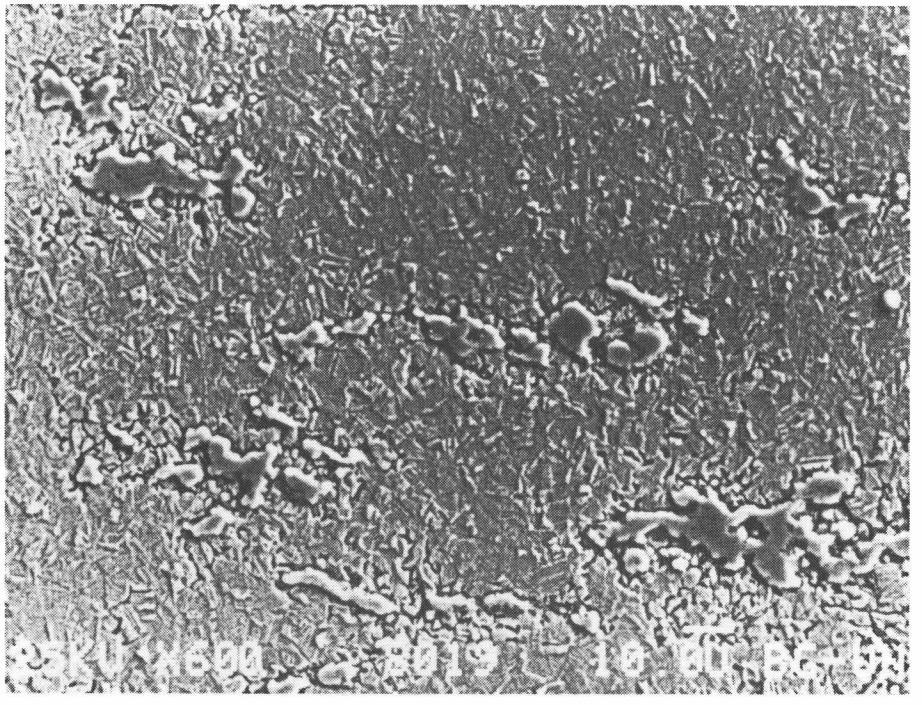
Pl. 06.4.1 and 2 Tripod foot detail.



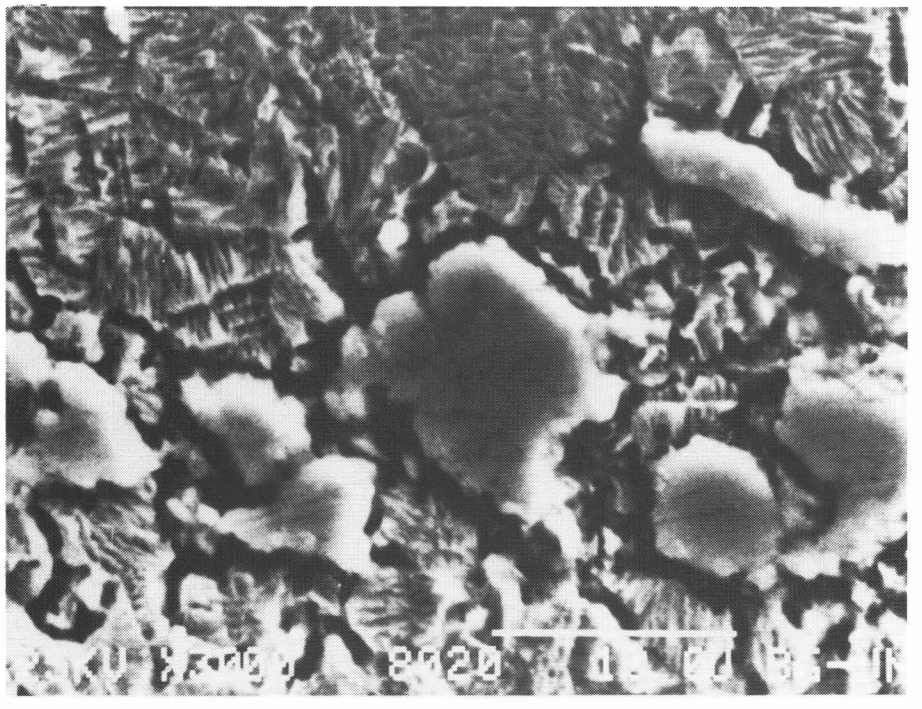
Pl. 06.5.1 C-1 cross section: polished.



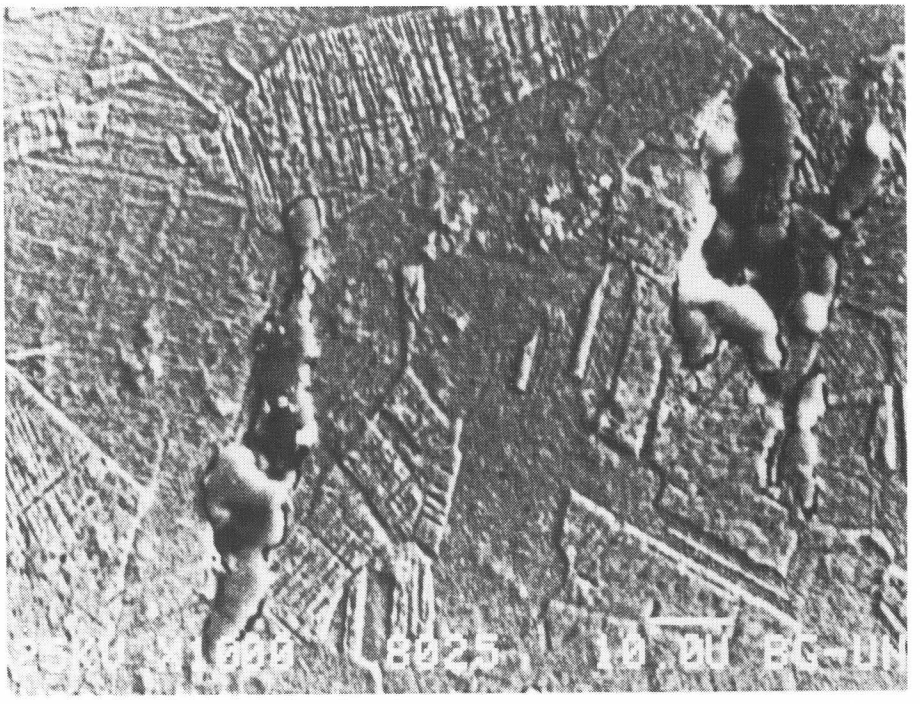
Pl. 06.5.2 C-1 cross section: etched.



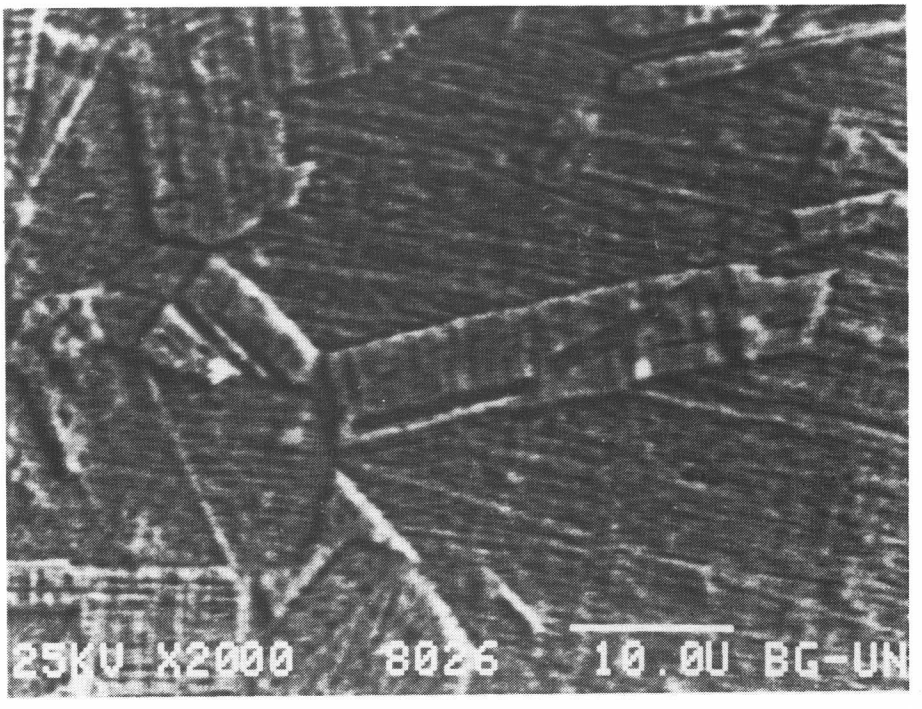
Pl. 06.6.1 C-2 cross section (along the main axis): polished.



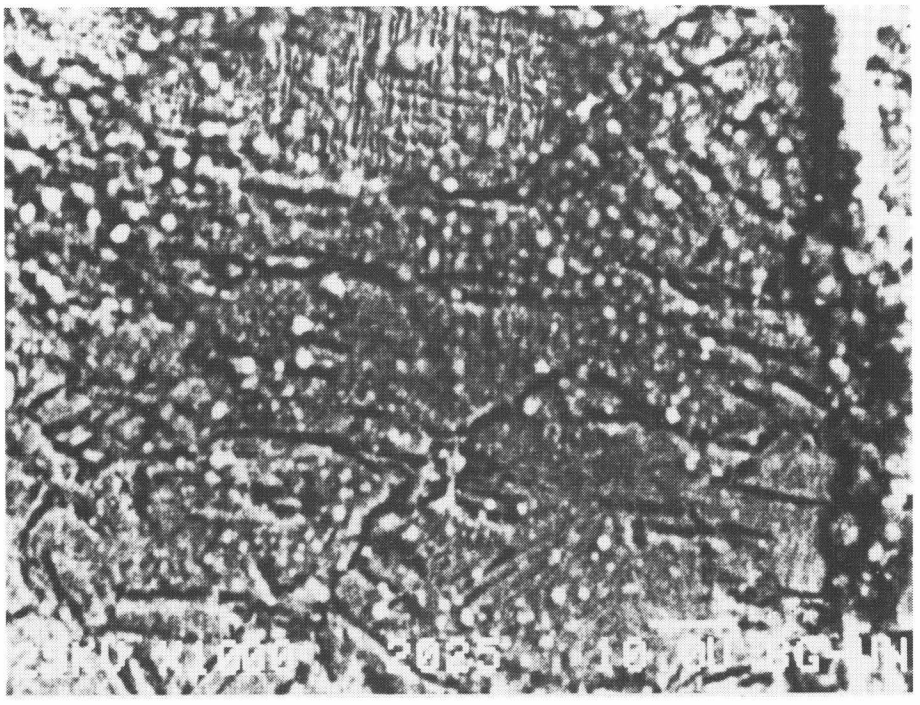
Pl. 06.6.2 C-2 cross section (along the main axis): etched.



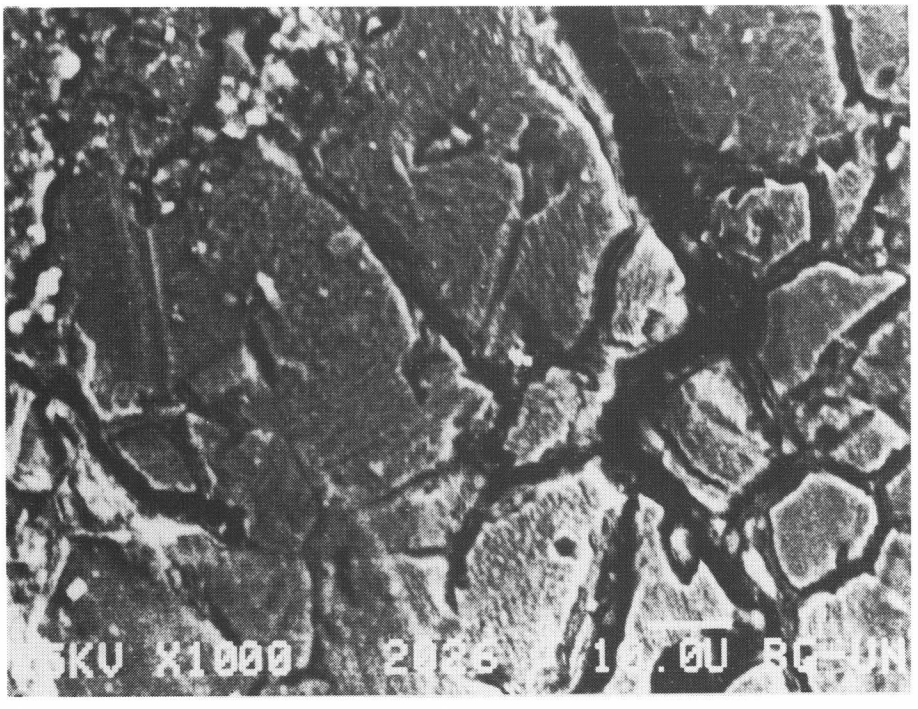
Pl. 06.7.1 C-3 cross section: polished.



Pl. 06.7.2 C-3 cross section: etched.



Pl. 06.8.1 Deformed grains at the head of the rivet.



Pl. 06.8.2 Deformed grains around the edge of the hole in the stripe.

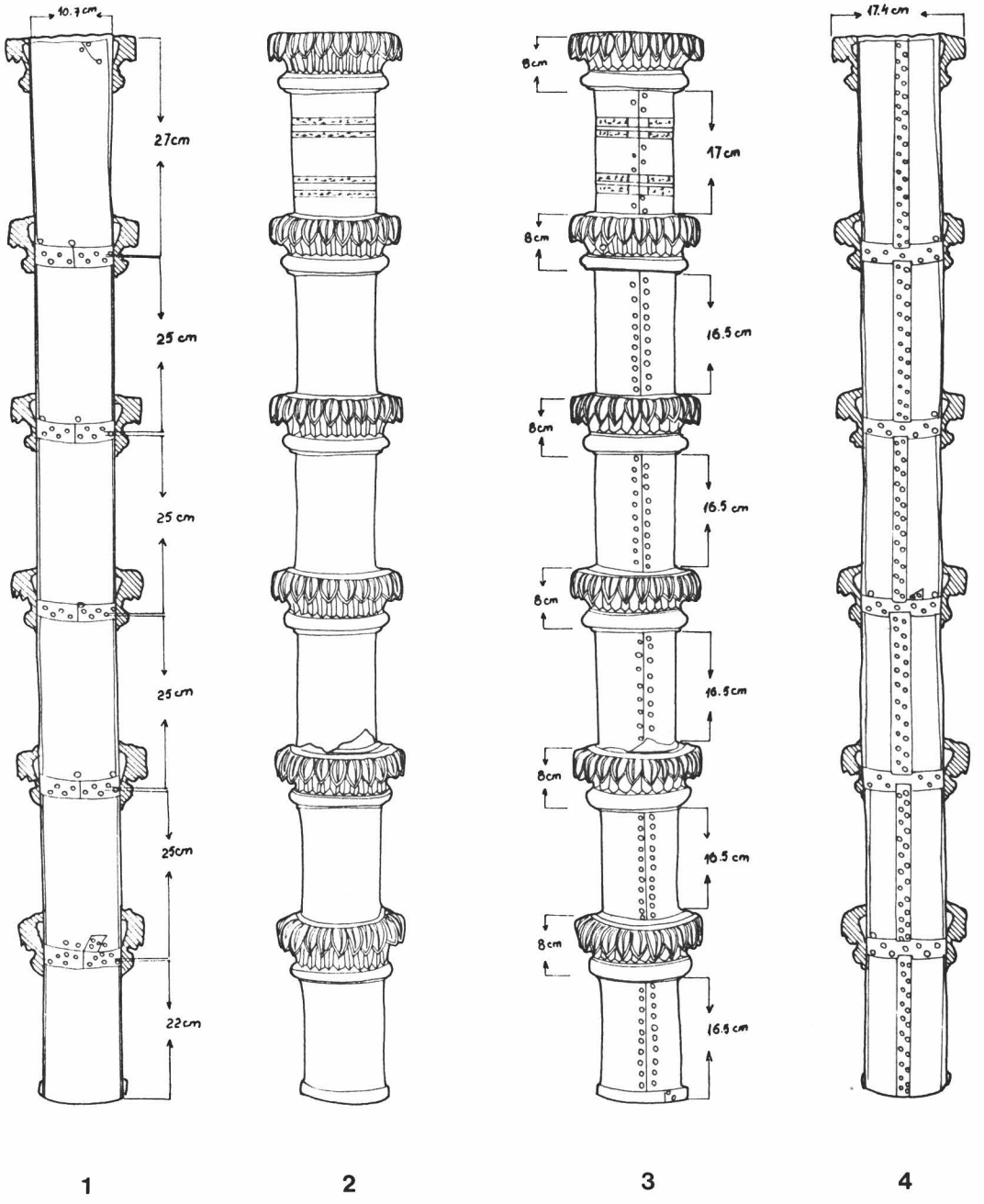


Fig. 06.1.1 Front view from the outside.
Fig. 06.1.2 Front view from the inside.
Fig. 06.1.3 Back view from the outside.
Fig. 06.1.4 Back view from the inside.

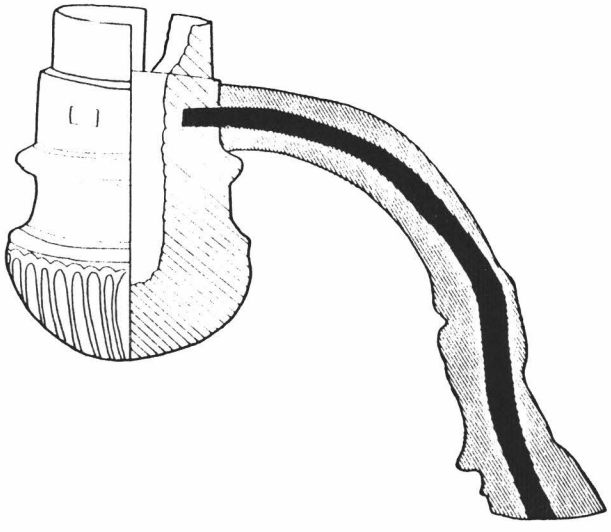


Fig. 06.2 The construction of the tripod.

07. THE SOUTHWESTWARD EXPANSION OF URARTU: NEW OBSERVATIONS

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The expansion of the Urartian kingdom southwestwards towards the Euphrates was facilitated by the construction of the world's earliest known, long distance, built and engineered road. The road is c. 5.40 m wide, narrowing to 3.90 m. Its width was confined by stone slabs but the surface was only irregularly covered. Terraces to support the road were constructed and, where necessary, bridges.

The presence of way-stations, built on a rectangular plan typical of Urartian buildings, assure an Urartian date for the road. The surface pottery associated with the way-stations confirms this date. A further criterion for an Urartian date are the inscribed rock marks.

It is well-known from Urartian texts that the region around Elazığ was called Alzi and Supa and had been controlled by the Urartians from the beginning of the 8th century BC to the reign of Rusa II, except for a very short interval during the reign of the Assyrian king Tukulti-apil-Esharra (Tiglath-pileser). The Urartian domination, from the reign of Menua to the reign of Rusa II, lasted for about 125 years (see Sevin 1985: 282; 1988: 547).

The desire of the Urartians to dominate this western region can be clearly understood from plentiful archaeological evidence. The three guard-posts, for example, on the east bank of the river Euphrates, today called Habibuşağı, Baskil/Kaleköy and Maltepe, prove the security measures taken by the Urartians on this frontier (Sevin 1985: 280, Figs. 1-4). The inland settlements, Haroğlu, Harput, Palu, Mazgirt and Yıldıztepe, are the most important Urartian centres in the western region (**Fig. 07.1**) (Sevin 1986: 10, Fig. 1, 32-44; 1987: 451). These archaeological remains, supported by written evidence, show us that the region of Elazığ was highly important for the Urartians.

From the region of Van Lake it was possible to reach this frontier zone, which was acquired by the Urartians at the beginning of 8th century, only via the Muş-Bingöl road. For a hundred kilometres this road ran along the rocky parts of the volcanic Bingöl mountains (3000-2500 m in height). Since the area was extremely rugged, the road was certainly not suitable for wheeled traffic. Neverthless, the Urartians solved the communication problem by means of a sophisticated road system which even now can be easily traced.

The average width of this road, which can be followed from the foot of the Bingöl mountains at the west end of the Muş plain, is 5.40 m but where necessary it becomes as narrow as 3.90 m. There are confining stones placed on both sides (**Pl. 07.1** and **Fig. 07.2.1**). The surface of the road was not completely covered by stone slabs which were placed somewhat haphazardly. It is also apparent that in order to support the road surface, the Urartians constructed stone wall terraces (**Fig. 07.4.2**), and when it was necessary they cut the rock to give more room to pass on the road. Small streams encountered were crossed by bridges constructed of rubble stone and timber (**Fig. 07.2.2**). In addition, it was also observed that broken stone was spread out over wide areas of the road. As will be seen, this road system is technologically very advanced.

At first sight this highway resembles a Roman road but there are some indications in favour of an Urartian origin. These indications are stage-posts, which must have been built by the Urartians, on this ancient route through the Bingöl mountains. This ancient road maintains the same line as the modern Muş-Elazığ road (**Fig. 07.1**).

These stage-posts were constructed at intervals of 25-30 km along the road and provided accommodation facilities. These are Solhan/Cankurtarantepe, Zulümtepe, Bingöl/Kaleönü and Bahçecik 2, from the east to the west (1). We learn of the presence of such stage-posts from Assyrian and Persian records (Sevin 1988: 547). Zulümtepe, 28 km east of Bingöl, and Bahçecik 2, 30-35 km northeast of Palu, are the most well-preserved examples of the Urartian stage-posts. Both have long, rectangular plans. The post at Zulümtepe is 87 x 44 m and is surrounded by a 3.20 m thick wall which has projecting buttresses at fixed intervals (**Figs. 07.4.1, 07.3** and **07.6.1**). The second stage-post, Bahçecik 2, also has a rectangular plan (62 x 10 m) and a 0.90 m thick wall, again supported with projecting buttresses (**Fig. 07.5**). In other words, it is a version similar to the Zulümtepe stage-post. It is also very clear that there were numerous rooms in the Bahçecik 2 stage-post.

A number of rectangular buildings, like those that we have traced, find parallels in northwestern Iran (**Figs. 07.6.2**; **07.7.2**) (see Kleiss 1971: 64, Fig. 59; 1972: 148, Fig. 21; 1976: 31, Fig. 9; 1983: 283, Fig. 1; Kleiss 1979: 152, Fig. 4; Boehmer and Fenner 1973: 512, Fig. 47) and in the Van region (**Pl. 07.1**) (Erzen 1978: 29, Fig. 13). It has even put forward that they might be Urartian stage-posts (Kleiss 1983: 284). The rock-cut marks, however, located on the southern slopes of the hill of Bahçecik 2 are new criteria for the Urartian buildings (**Pl. 07.2**) (Kleiss 1968: 27, Fig. 14; 1981: 23, Fig. 1-2). Surface pottery, which can also be used for dating, has, in general, similar characteristics. They are all, except two or three examples, wheel-made pots of the Elazığ region, commonly seen in the early Iron Age. They include small bowls with simple, grooved rims (**Fig. 07.8.1-3**) and bowls with outsplayed rims and sharp profiles (**Fig. 07.8.2-4**). Decorations are usually composed of parallel, diagonal lines and incised chevrons (**Fig. 07.8.5-8**). On the basis of these sherds, we can say that these stage-posts can be dated to the first half of the 8th century BC. As stated below, we also have evidence which shows the increasing influence of Urartian pottery on the Elazığ region in the 7th century BC (Sevin 1987: 451).

Southeast from the Bahçecik stage-post, which is on the western slopes of the Bingöl mountains, and after some 30 km the most important Urartian centre, Palu, could be reached. At this point, the road crosses the river Murat. It is possible that, starting from here, the road ran on towards Genefik (**Fig. 07.9.1, 2**), Yıldıztepe (**Fig. 07.9.3-5**) and Norşuntepe (2), three centres which have produced ceramics dating to the 7th century BC and which are situated on the northern slopes of the Mastar mountains, the natural border on the south side of Altınova. No traces have been encountered on this route but there is no doubt that the south terrace at Norşuntepe, which measures 50 x 40 m, belongs to an Urartian stage-post (**Fig. 07.7.3**). The plan and inner layout lead to this conclusion (Hauptmann 1969-70: 64 and Fig. 20). At 25 km northwest of Norşuntepe there is Harput, one of the most important Urartian centres (**Fig. 07.1**).

It is thus understood that the Urartians established a very sophisticated road system in the 8th century BC in order to maintain communications with the Elazığ region on the western frontier. This road system, which had been used until the 7th century BC, could easily be called the world's oldest road system and is

most probably the influential precursor of the later Royal Road constructed by the Persians.

Notes

1. For more detailed information about these stage-posts, see Sevin, V. 1985: 284; 1986: 5; 1987: 451.
2. For the sherds dating to the 7th century BC and discovered at Norşuntepe, see Hauptmann (1969-70: 71; Figs. 21-23).

Editors' Note

The map, plans, drawings and photographs published here have been previously used by Professor Sevin, with two exceptions: **Fig. 07.6.2** and **07.7.2**.

A concordance, therefore, is given here, for ease of reference.

Fig. 07.1.1 Map of road and stage-posts
Sevin 1988: 548 and Fig. 1
Sevin 1989: 47 and Pl. 1

Fig. 07.1.2 Plan and section of the road
Sevin 1986: Fig. 21

Fig. 07.2 Plan and section of a bridge at Zulümtepe
Sevin 1986: Fig. 15

Fig. 07.3 Plan of Zulümtepe
Sevin 1985: Fig. 13
Sevin 1989: 47 and Pl. 4 no. 2

Fig. 07.4.1 Section of the road and structure at Zulümtepe
Sevin 1986: Fig. 14
Sevin 1989: Pl. 5 no. 1

Fig. 07.4.2 Section of the road
Sevin 1987: Fig. 30

Fig. 07.5 Plan of Bahçecik 2 stage-post
Sevin 1987: Fig. 34
Sevin 1988: 550 and Fig. 4
Sevin 1989: 51 and Pl. 6 no. 1

Fig. 07.8.3 Plan at Norşuntepe
Sevin 1989: 52 and Pl. 7 no. 2

Fig. 07.9 8th and 7th century BC pottery from Zulümtepe (nos. 1-3, 5-8), and Cankurtarantepe (no. 4). Scale 2:5. Wheelmade.

1 Dark buff	Sevin 1985: Fig. 14 no. 1
2 Red	Sevin 1985: Fig. 14 no. 2
3 Pale red	Sevin 1985: Fig. 14 no. 5
4 Red slipped	Sevin 1986: Fig. 11 no. 1

	5 Red slipped	Sevin 1985: Fig. 14 no. 25
	6 Pale orange	Sevin 1985: Fig. 14 no. 22
	7 Pale red	Sevin 1985: Fig. 14 no. 23
	8 Red slipped	Sevin 1985: Fig. 14 no. 24
Fig. 07.10	8th and 7th century BC pottery from Genefik (nos. 1, 2) and Yıldıztepe (nos. 3-5). Scale 2:5. Wheelmade.	
	1 Brown slipped	Sevin 1986: Fig. 27 no. 9
	2 Pink slipped	Sevin 1986: Fig. 27 no. 10
	3 Brown slipped	Sevin 1987: Fig. 40 no. 7
	4 Reddish-brown slipped	Sevin 1987: Fig. 40 no. 3
	5 Pink slipped	Sevin 1987: Fig. 39 no. 8
Pl. 07.1.1	A view of the road near Korucu Köyü	Sevin 1986: Fig. 8
Pl. 07.1.2	A rock symbol at Bahçecik	Sevin 1988: Fig. 35 Sevin 1989: Pl. 6 no. 2

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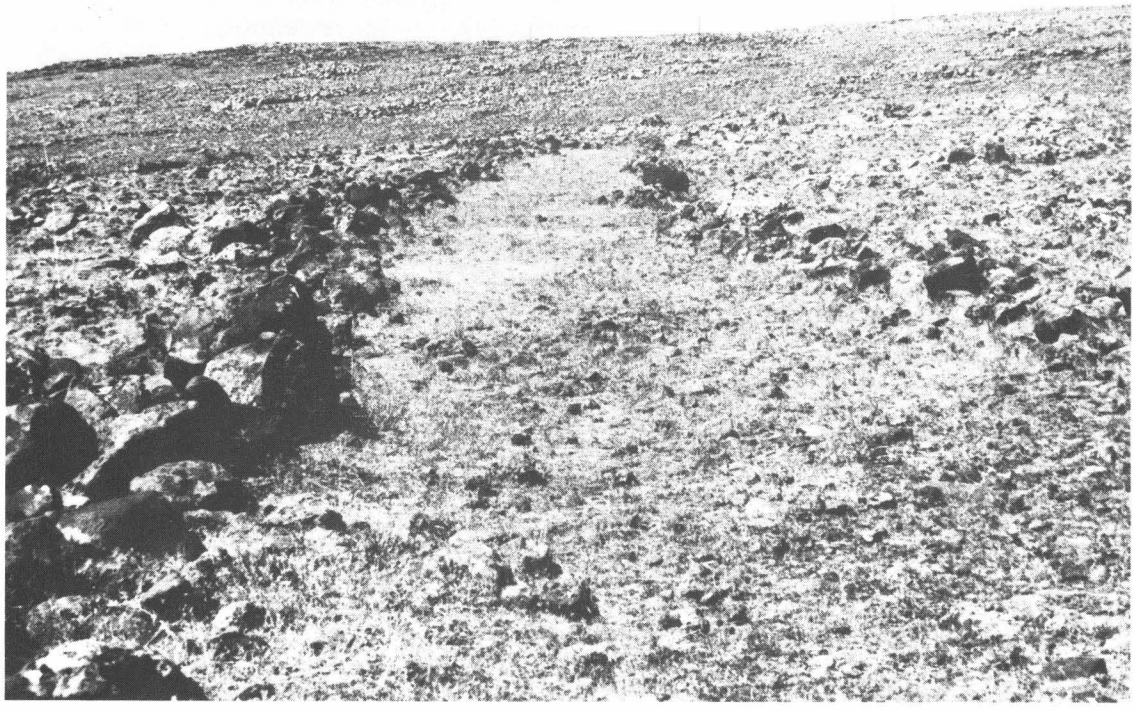

Pl. 07.1.1 A view of the road near Korucu Köyü.
Pl. 07.1.2 A rock symbol at Bahçecik.

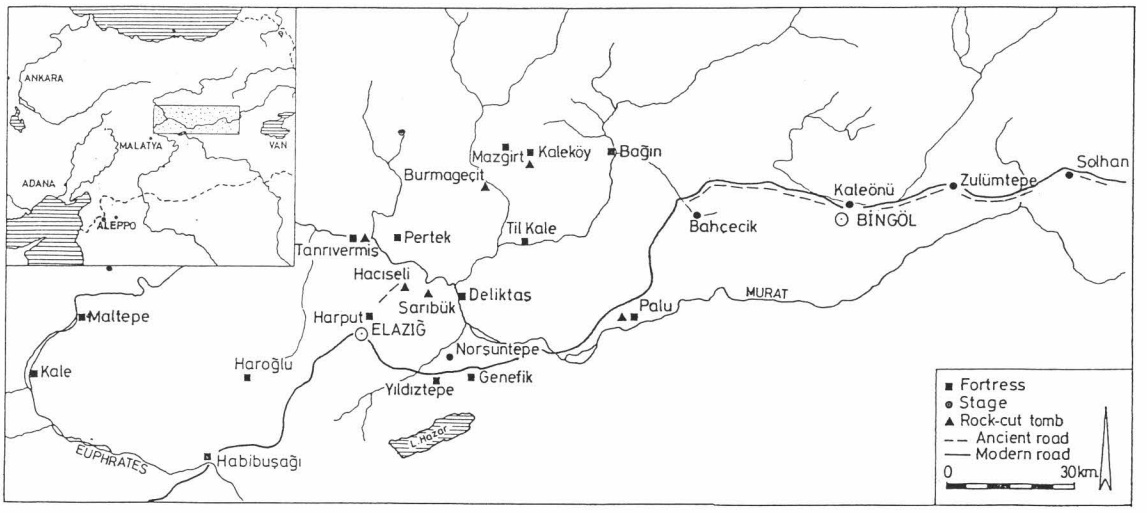

Fig. 07.1.1 Map of road and stage-posts.

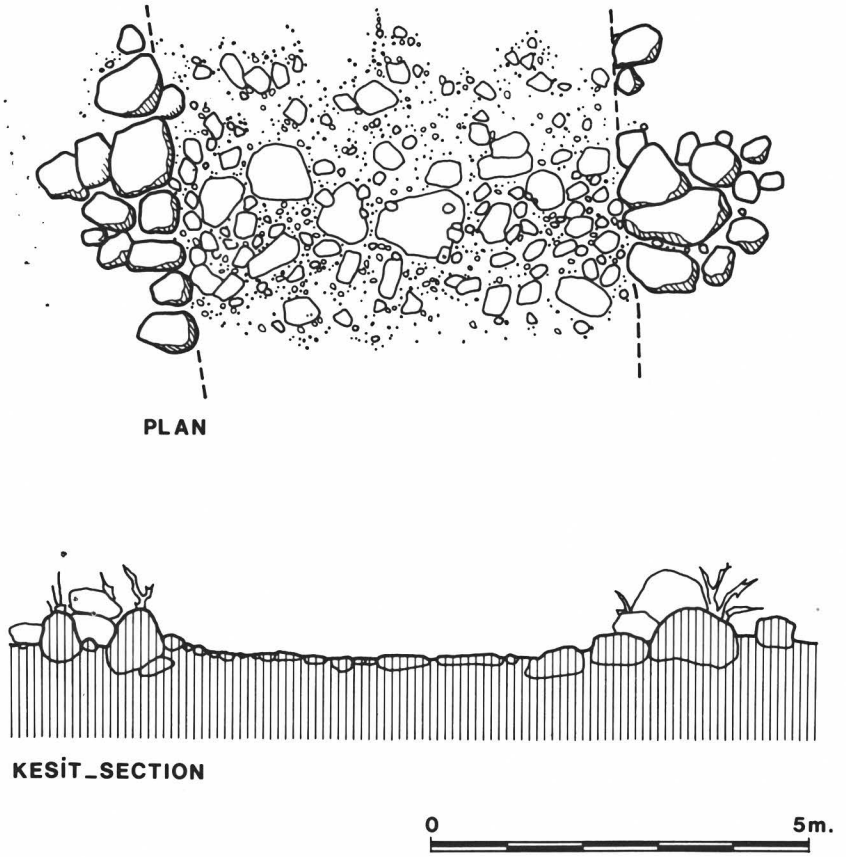

Fig. 07.1.2 Plan and section of the road.

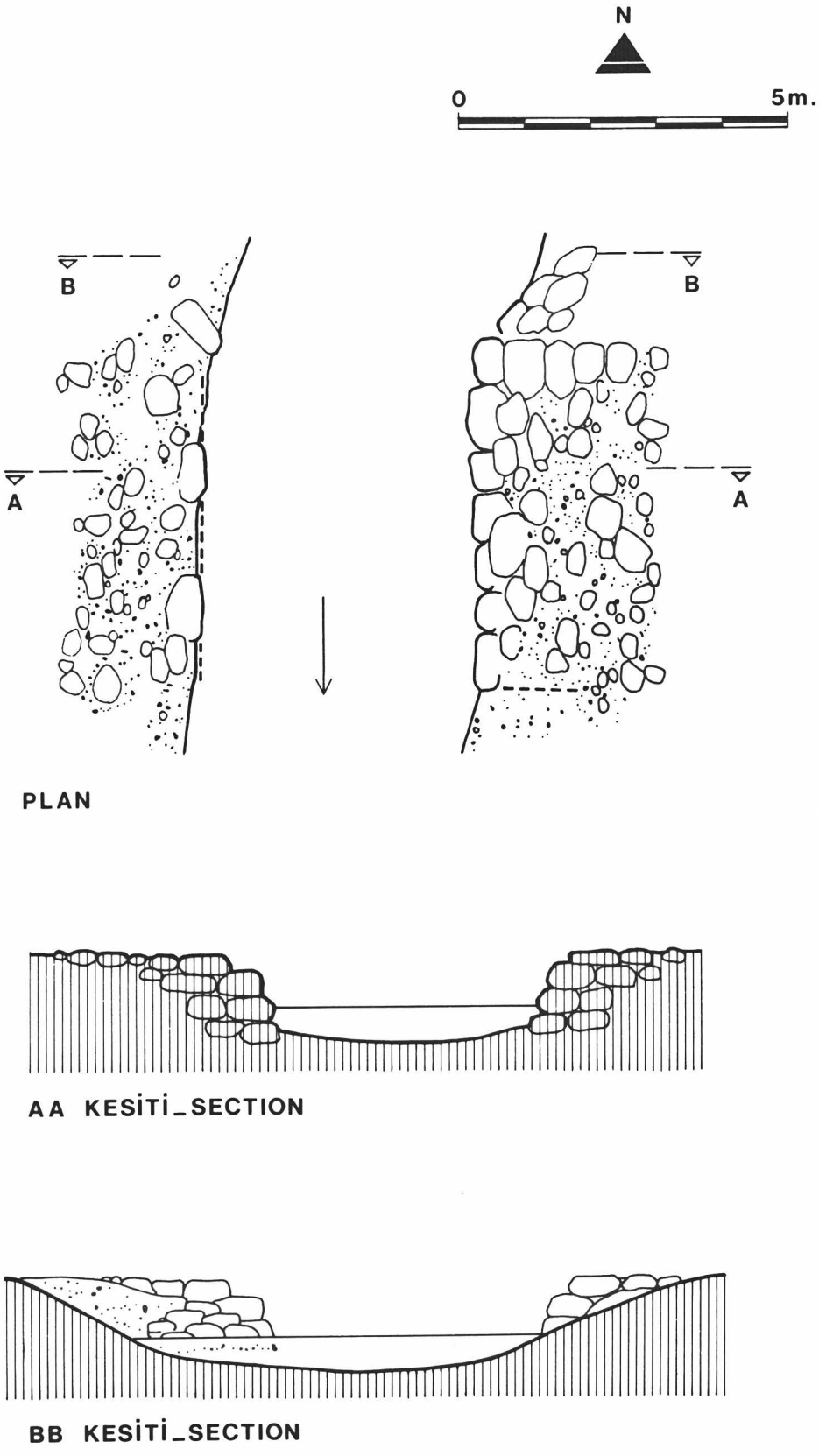

Fig. 07.2 Plan and section of a bridge at Zulümtepe.

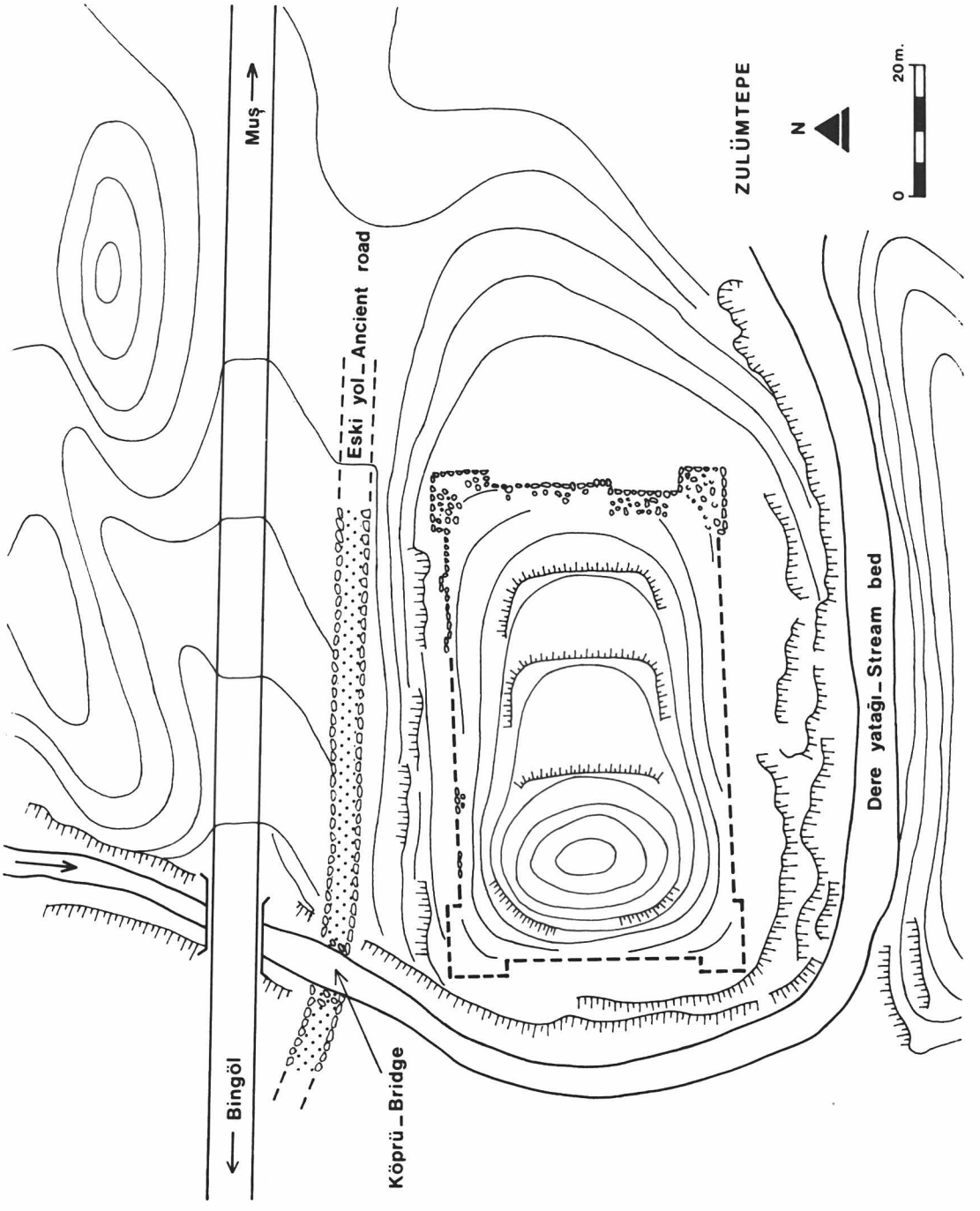

Fig. 07.3 Plan of Zulümtepe.

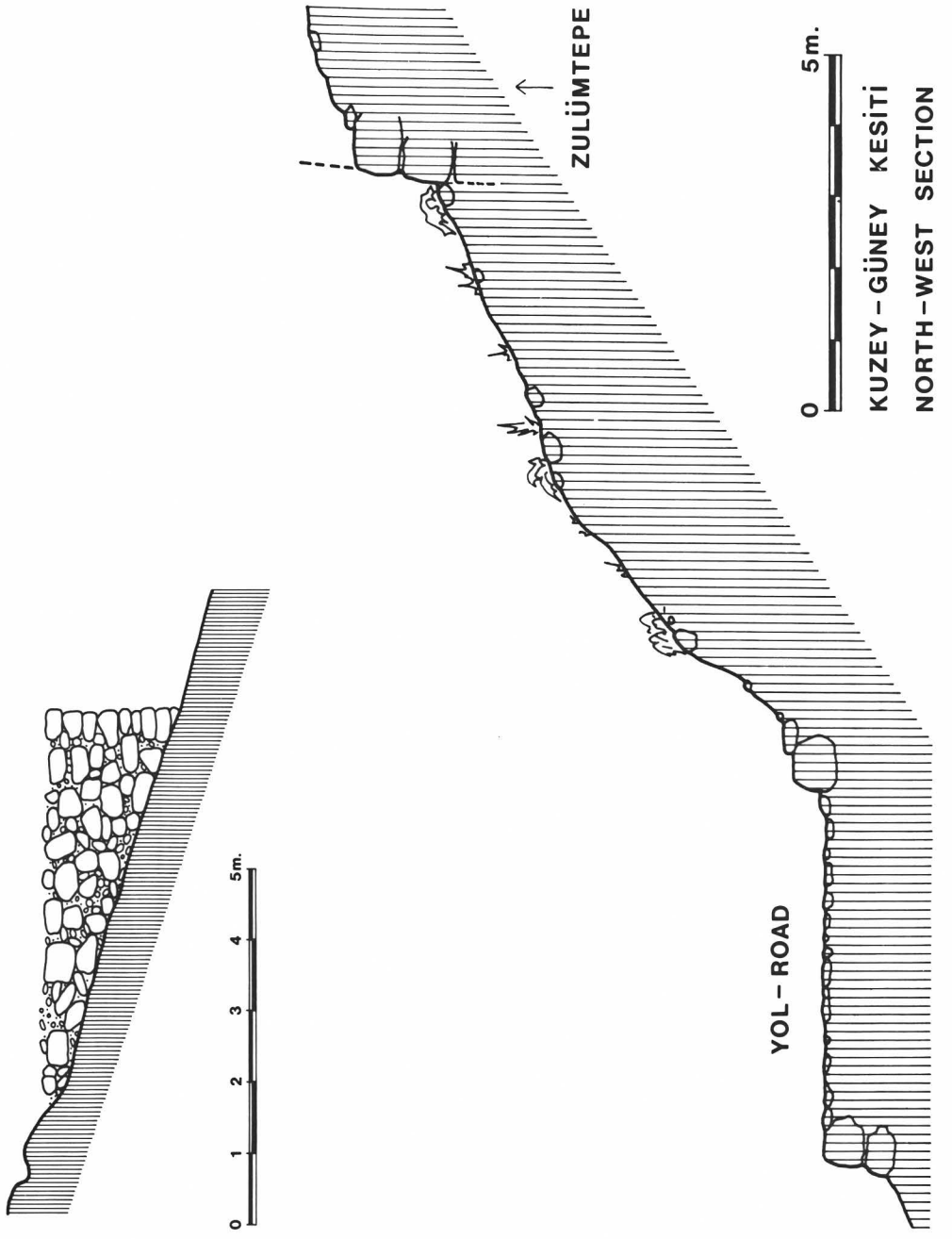

Fig. 07.4.1 Section of road.
Fig. 07.4.2 Section of the road and structure at Zulümtepe.

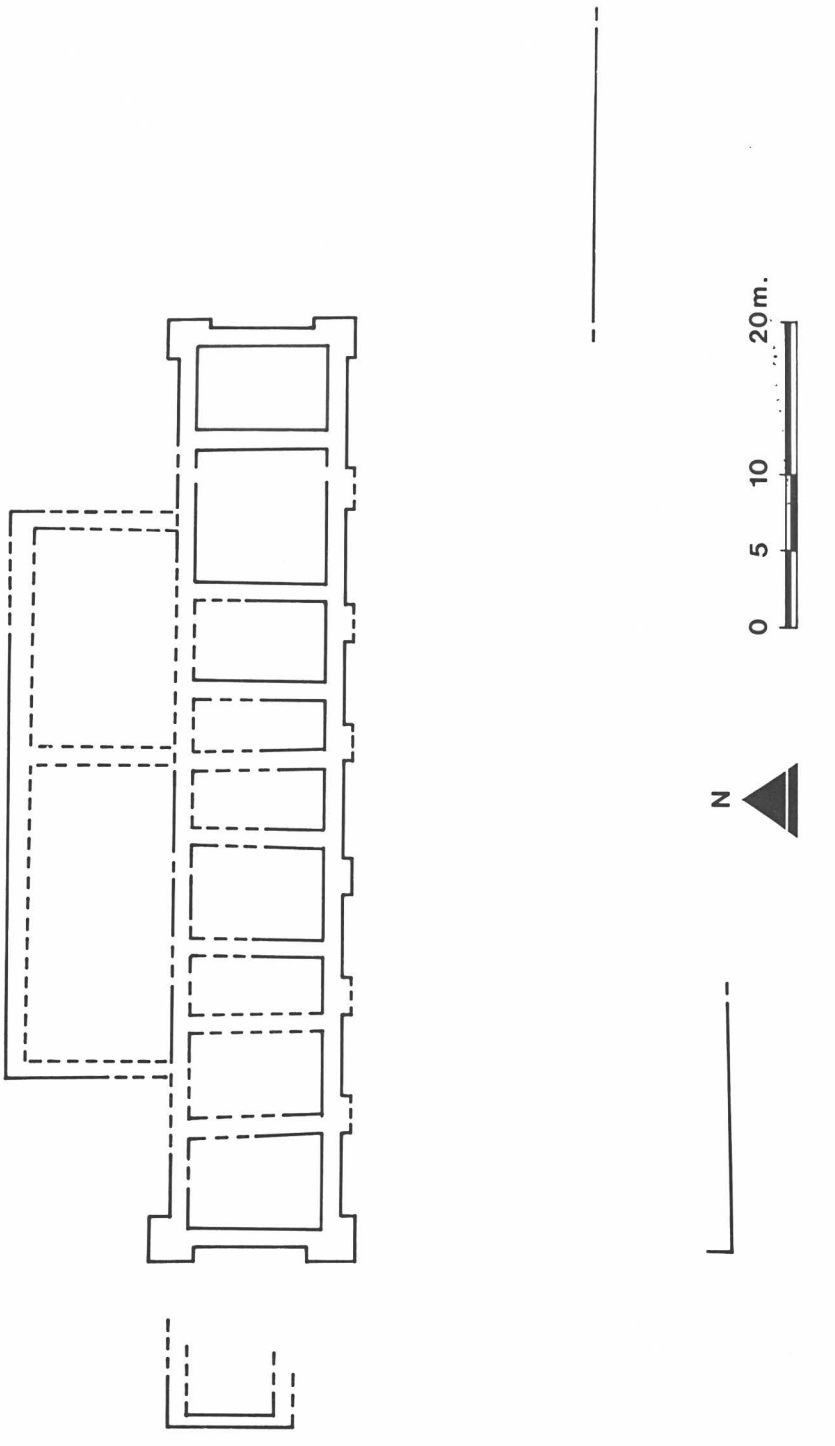

Fig. 07.5 Plan of Bahçecik 2 stage-post.

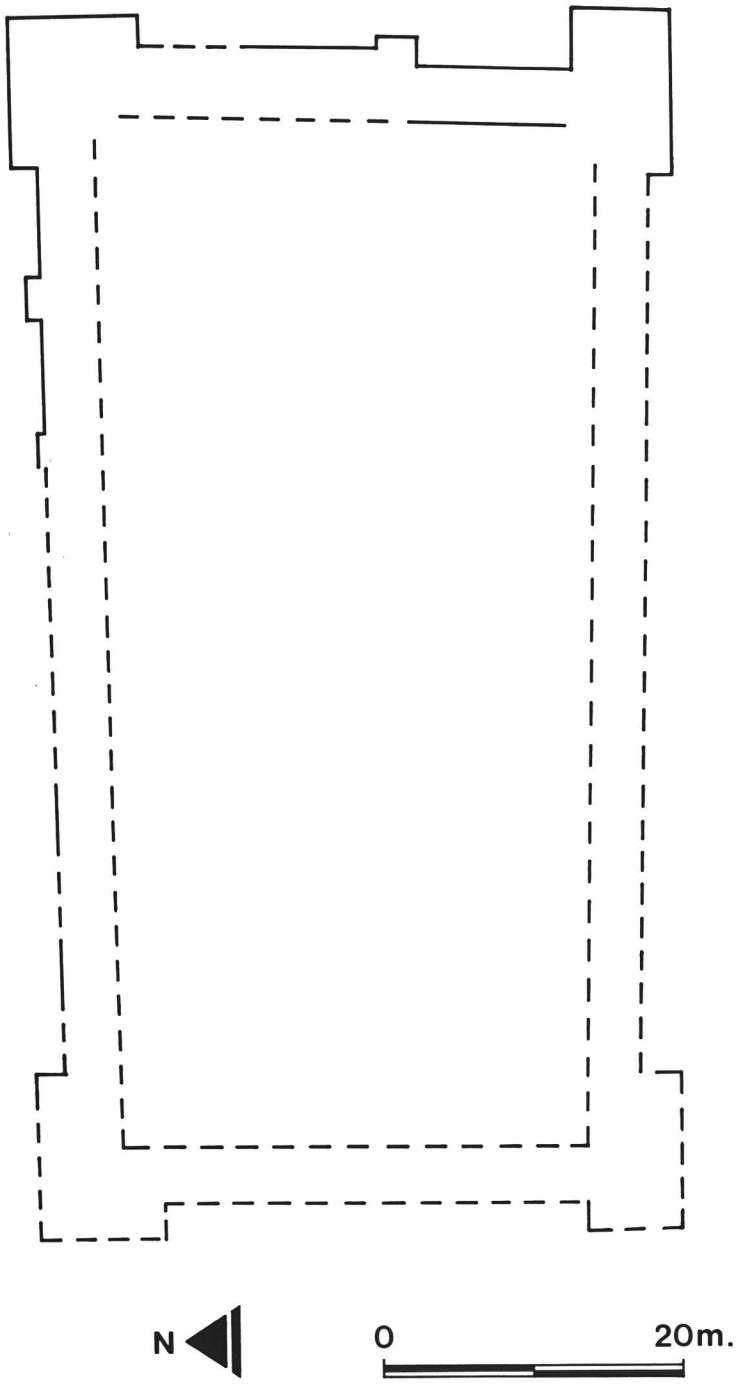

Fig. 07.6 Plan of stage-post at Zulümtepe (schematic).

Fig. 07.7 Plan of Uzub Tepe (after Kleiss 1972: 64, Fig. 59).

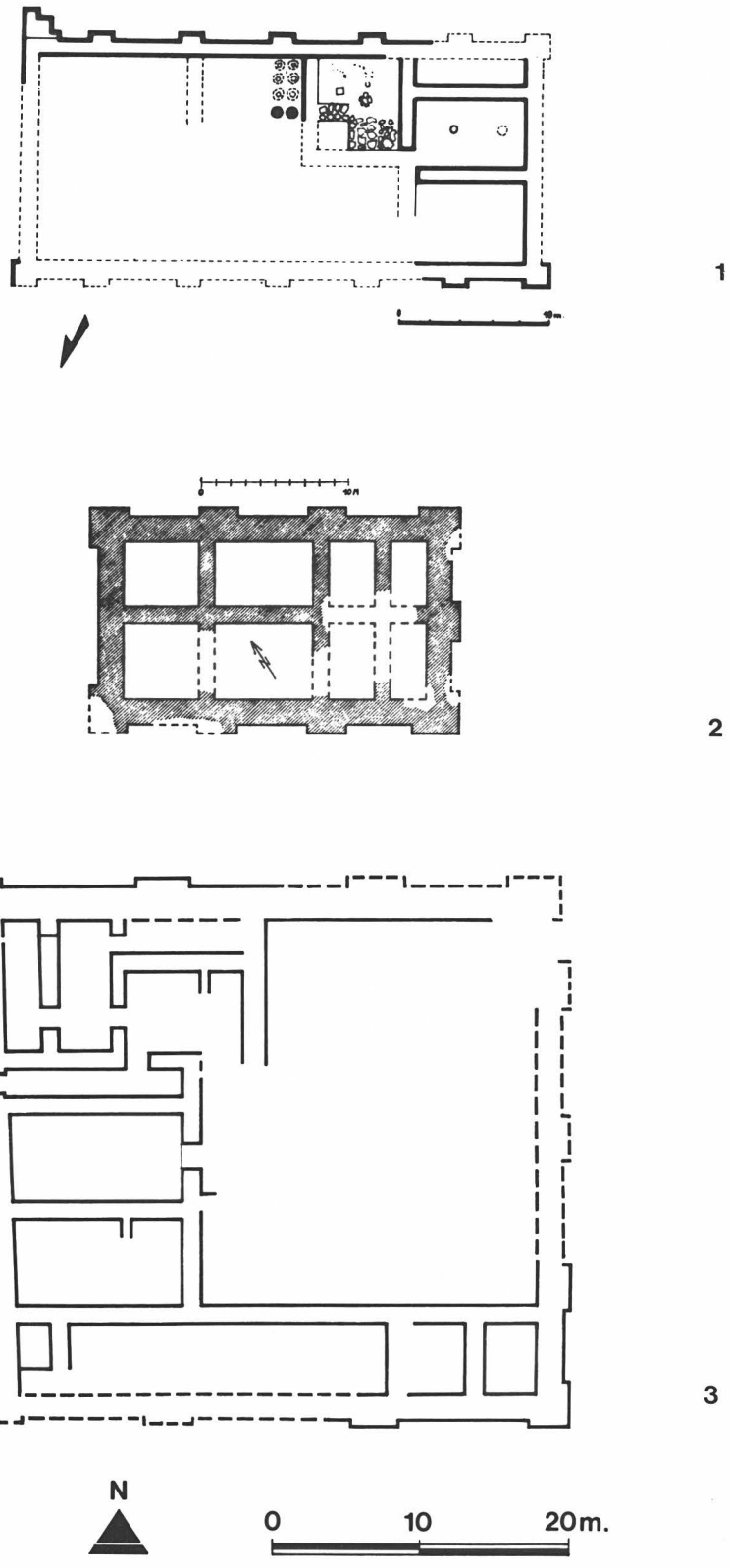

Fig. 07.8.1 Plan of structure at Van, Çermik (after Erzen 1978: 29, Fig. 13).
Fig. 07.8.2 Plan of Gauhar (after Kleiss 1972: 148, Fig. 21).
Fig. 07.8.3 Plan at Norşuntepe (after Hauptmann 1969/70: 65 and Fig. 20).

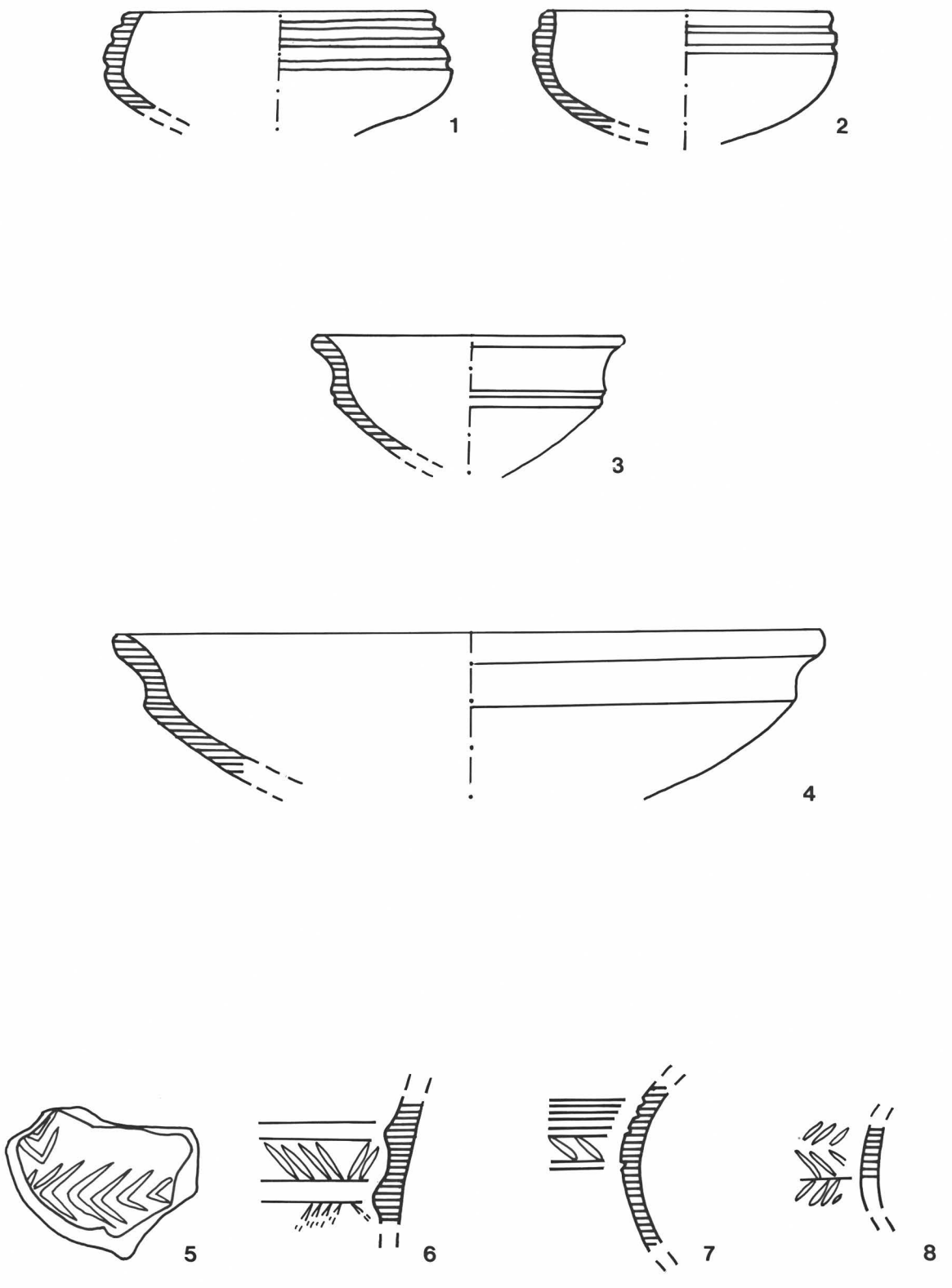

Fig. 07.9 8th and 7th century BC pottery from Zulümtepe (nos. 1-3, 5-8) and Cankurtarantepe (no. 4). Scale 2:5.

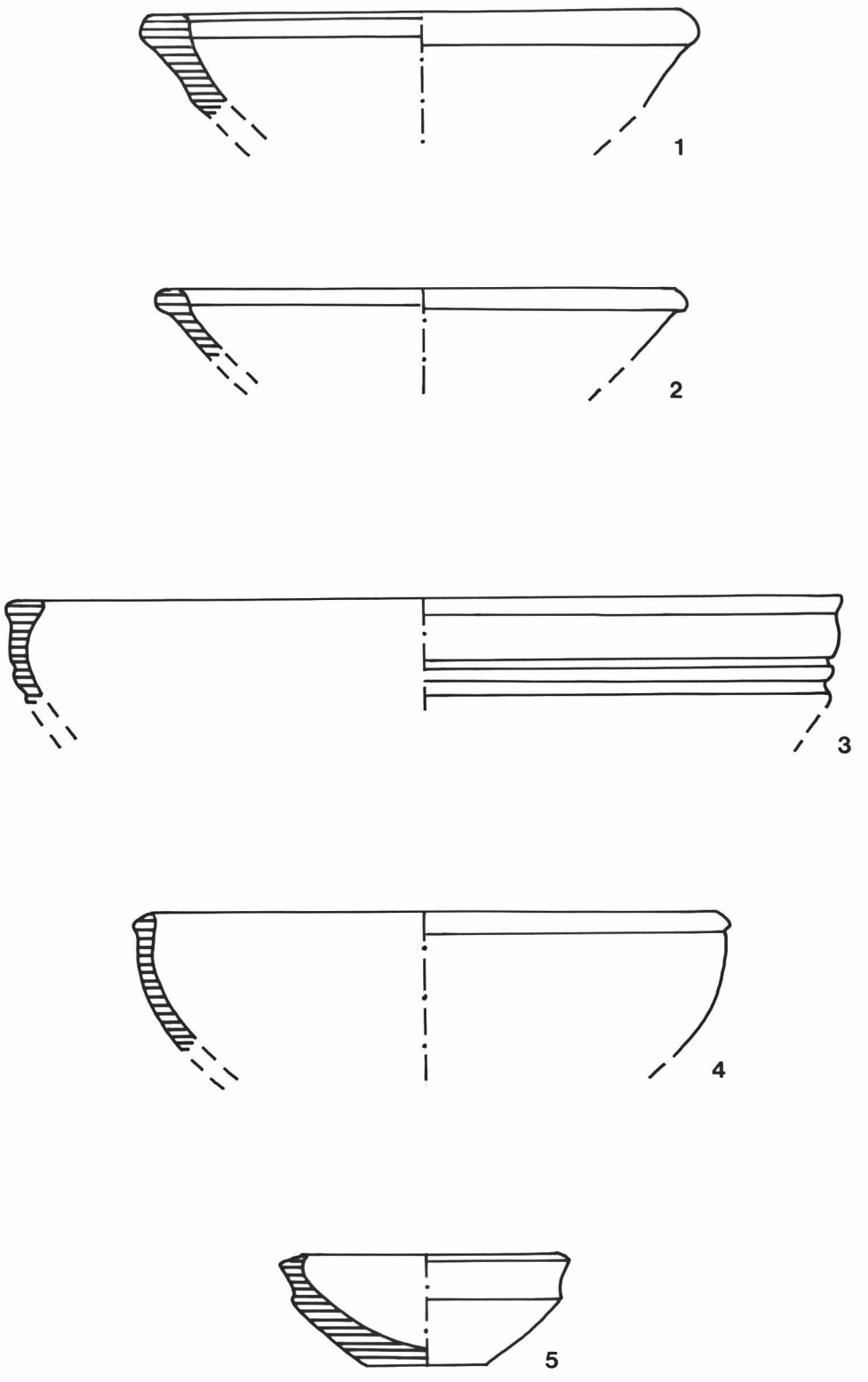

Fig. 07.10 8th and 7th century BC pottery from Genefik (nos. 1, 2) and Yıldıztepe (nos. 3-5). Scale 2:5.

08. THE CLOSE AFFINITY BETWEEN THE IRON AGE LANGUAGES OF LUVIAN ORIGIN IN ANATOLIA AND THE FIRST IRANIAN LANGUAGES - THE POSSIBLE CONNECTION BETWEEN THE NAME "TÜRK" AND THE ANATOLIAN NAME "TARKHUN" (RULER, SOVEREIGN, LORD)

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İzmir

There is a clear connection between the Luvian language and the succeeding Iron Age Anatolian languages and the first Iranian languages, particularly in the suffixes e.g. (1) -wana (Luvian) to -ana (Iron Age Anatolian) and -âne (Iranian), (2) -wanda (Luvian) to -anda (Iron Age Anatolian and Iranian), (3) -ka to -gâh (Iranian).

Part 2 deals with Luvian and Hittite elements in Sogdiana.

Part 3 treats the element Tark- and Türk- in Sogdiana.

1. THE CLOSE AFFINITY BETWEEN THE IRON AGE LANGUAGES OF LUVIAN ORIGIN IN ANATOLIA AND THE FIRST IRANIAN LANGUAGES

Today, in contrast to the theories valid 50 to 60 years ago, it has been accepted without any doubt that during the Iron Age the languages of the old Luvian regions located in the south of Anatolia such as Cilicia, Lycaonia, Lycia and Pisidia were of Luvian origin. On the other hand, it is still not known if the Luvian culture was dominant in Western Anatolia, for example in Caria, Lydia, Mysia and Troas, in the Second Millennium BC and if the origin of their languages was Luvian or not.

The Luvians have been examined in detail in my book "The early history of the people of Turkey" (Umar forthcoming). I am now preparing the second edition of this book. The first part of volume 1 in the first edition will be expanded as parts 1 and 2 in the second edition and has been devoted to the subject of the Luvians in detail. For this new edition of volume 1, I have also investigated the two obscure points mentioned above. During this investigation I worked not only on archaeological finds but also made use of onomastic evidence. I also scrutinised the thousands of historical-geographical names known in the Western Anatolia.

As a result, I discovered that some of the suffixes and some of the words had the same meaning in the Luvian language as in the succeeding IA Anatolian languages and in the first Iranian languages. I also noticed that these were very commonly used in historical-geographical names. The first example that can be given is Luvian *-wana* which was used as *-ana* in the succeeding IA Anatolian languages. It is a suffix used to derive an adjective from a name, like the *-ic* and *-ish* of contemporary English, *-lich* of German and *-ikos* of Greek. This suffix is still used in Iranian as *-âne*: Şah (King, König, Roy) with *-âne* = *şahâne* (royal, königlich). The name in Luvian *Iawana* (Yauna in Iranian; first Iaonia and then Ionia in Greek) was also derived from this suffix: *Ia* (earth, land, mainland) joined to *-wana* = *Iawana*, anakara-*sal*, Festland *-isch*, a country which is not an island. Likewise the root form of the name Iran *Airyana*, has been derived from this suffix: Arya-*isch*, the land of Arya.

The second example is the Luvian suffix *-wanda* which turned into *-anda* in the succeeding IA Anatolian languages. We know that this means: "which has.....", "rich in.....". For example: the city name *Wianawanda* (Oinoanda in the Hellenistic period) was derived by putting the root word **wiana*, (*oinos*, *oine* in Greek, meaning wine and grapes) together with the suffix *-wanda/-anda*. It means "which has vineyards". We see this suffix also in old Iranian. For example, according to Herzfeld, the old name of the city which is now called Nihavend was Niphawanda. This was derived by joining the name *nipha* (snow) and *-wanda*. It means "snowy". The same suffix occurs in the form *-vant* in the Avestia language (for example: puthra-*vant*, "who has a son"). In modern Iranian the form is now *-mend*.

The third example is the *-ka* suffix, which means "its place", like the *-ion* suffix in Greek. For example: Rundaka *i.e.* Runda-*ka*, "deer place", (in Greek *Rhyndakos*), Ithaka *i.e.* Ida-*ka*, "forest place" (in Odyssey 13.247 Athena says of Odysseus' island ".....it has.....timber of all kinds.....), Karka/Kraka (Kragos in Greek), Kar/Kra (peak) with *-ka*, the "peak point". We see this suffix frequently in old Iranian, *e.g.* Ganzaka/Gazaka, "treasure place", Nautaka, Nauta "oil place". The same suffix is still in use in contemporary Iranian as *-gâh*. This passed into Ottoman Turkish from Iran: Karargâh (karar-*gâh*, "decision place"), Headquarters; Ordugâh (ordu-*gâh*, "army place"), in other words, the army camp *etc*.

2. THE POSSIBLE CONNECTION BETWEEN THE NAME "TÜRK" AND THE ANATOLIAN NAME "TARKHUN" (RULER, SOVEREIGN, LORD)

Introduction: The Effects of Ancient Indo-European Language in Western Türkistan

During the second and first millennia BC, in the Marakanda (now Samarkand) region, Sogdiana and its vicinity was the homeland of people speaking one of the first Indo-European languages, which bore a close resemblance to Luvian. Later, the proto-Turkish cultures spread into this Sogd land and, as a natural result, mixed cultures were created. The great scholar, Zeki Velidî Togan, also treated this subject (1981: 31-32). He even stated that the origin of the writing on Orkhun monuments was in a form which had been brought from Anatolia by people coming from Anatolia and speaking one of the first Indo-European languages.

It is thought that the presence of some of the words such as mother (*ana*) and father (*ata*), which had exactly the same meanings in the Luvian and Hittite languages but with only small sound differences, was not fortuitous.

Thus, in Sogdiana during the medieval period, there lived a Turkized people formed by a combination of people of pure stock speaking the Sogd language, which bears a close resemblance to the family of old Iranian languages, and of the Turkish race.

The words Tarkhun, Tarkhan, Türkhüm in some eighth century documents

The most detailed information in this subject is contained in the article written by Frye (1956).

From a letter which was written in AD 718 or 719 to Cerrah, the governor of the Arab province of Horasan and son of Abdullah, and according to the work of certain Arab historians, someone called Tarkhun had dominated Sogdiana at the beginning of the 8th century. It is not very clear who was this Tarkhun. Here his

name was confused with Tarkhan. Most probably, however, there was a connection between these two names. As far as is understood, Tarkhan was a title but could have been used as a name as well. In the same way, the grandfather of Farabi, the famous scholar who claimed to be both Turkish and Iranian, was called Tarkhan.

It is clear that the word Tarkhan was not pure Turkish and that it was adopted into Turkish from the old language of Sogdiana. This was proved in the Turkish dictionary *Divan ü Lügat it-Türk* written by Kaşgarlı Mahmut in the 11th century (1985: 436-471).

Kaşgarlı Mahmut explained the word Tarkhan in the following way:

> **"It is a name given before the Islamic religion. It means Prince (Bey, Umar) in Argu language".**

The Argu people were the Turkish inhabitants of the Sogdiana region or in other words some of the Turkized Sogdiana people. Kaşgarlı Mahmut also referred to the Sogdians who were not of Turkish origin but were Turkized later:

> **"Sogdak was the name of a nation who settled in Balasagun. These were of the Sogd race. Sogd lay between Bukhara and Samarkand. These people had adopted the Turkish appearance and the Turkish traditions".**

The Arabic historians called Tarkhun the ruler of the Samarkand or the king of Sogd (in other words Sogdiana). In the *Hatun Destanı* (quoted by Frye *op.cit.*) which concerned the capture of Bukhara by the Arabs, Tarkhun appears to be a half epic character. The epic (*destan*) says that he fought the Arabic commander Kuteybe during the capture of Bukhara. He then made peace and paid tax (tribute) to Kuteybe. After the Arabs left the region, he was dethroned by the Türks (or Turkized Sogdians) who were the enemies of Arab Islam and he later killed himself in prison. Only Yakubi says that he was killed by Gurek, who replaced him. Gurek dominated the region for 27 years and died in AD 737 or 738. During his reign, Gurek had sometimes friendly, sometimes hostile relations with the Arabs. In AD 711, during his rule, the Arab commander, Kuteybe, announced that he had promised himself to take revenge on Tarkhun. He did this, no doubt, in order to restore good relations and to get the support of Tarkhun's followers. Later, the letter that was written to Cerrah, the governor of Arab province of Horasan and son of Abdullah, mentioned two sons of Tarkhun.

Meanings of These Words and Their Relation to a Turkish Name

El Birunî says that Tarkhun was not a pure name. It was a title and had the same meaning as Tarkhan. It was however, in a different form. Welhausen (1902: 270), who may be called a contemporary historian, also accepted this opinion. Here the most important view is that of Frye who agreed with the Russian scholar Smirnova (quoted by Frye *op.cit*). They say that the name written as Tarkhun and read as Tarkhan by the Arabic historians should be the Türkhün of the local language of Sogdiana.

It seems that no one has noticed that the root of the word Türk could have been passed into Turkish from the language of Sogdiana where it means he "who is sovereign, ruler or commander". We do not know for how many thousands of years this word stretches back into the past. It has the same meaning as *Lord* in English

and *Kyrios* in Greek. In my opinion, it is this probability that should be considered. It is not simply a probability: there are realities which I will discuss.

For instance:

1. In the Christian world, words such as *Kyrios* and *Lord* are also used for describing God. In the same way, the Yakut Türks called the God of the world, especially the God of plants, *Ana Darkham Hatun*, whereas the Siberian Türks called the chief priest *Tarkhan*.
2. Scholars in the Middle Ages including the great Togan, who studied this subject, seem not to have heard the name Tarkhun, the main Luvian God of Anatolia in the Second Millennium BC (the Hittites called him by his name, in the Hurrian language: Teşub). Thus nobody thought that there could be a relation between the name of the Luvian God and the sovereign of the Marakanda/Samarkand region in the 8th century AD, Tarkhun/Türkhün.
3. The most arresting evidence is this: in Hittite, which closely resembles the Luvian language, there was a verb *tarkh-* or *tarkhur*. It means "to be mighty" or "to dominate". There is an interconnection between this name and Tarkhun, one of the names of the main God of Hittites/Luvians (his other name was *Sanda*, Saint). However, Heubeck (1959: 34) states that Tarkhun means "sovereign, dominus".
4. On the Orkhun monuments, the word Türk is not used as the name of the nation; it was used as the attributions for the nation, sovereign and God; it was used in the meaning of "making command, being master" (Türk Budun, Türk Bilge Kağan, Türk Tengri).

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09. ON THE ARCHITECTURAL ORIGIN OF THE URARTIAN STANDARD TEMPLES

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The six temples discussed first show a similarity both in plan and in structural characteristics.

A second type of temple is rectangular. A third type is shown on a stone relief erected by Sargon II at Khorsabad; it illustrates the sacking of the temple of Haldi in Musasir in 714 BC. Some of the details resemble elements known from Urartu.

In summary, the available evidence indicates the existence of three different architectural types of Urartian standard square or rectangular temples.

All the Urartian standard temples seem to date to the same general period, namely, from the later part of the 9th century to the 7th century.

The similarity, or even uniformity, in plan, shape, architectural style and decoration of all the Urartian standard temples, built over a vast territory, indicates a common origin. So far, no building which could have served as a proto-type of the temples or of their architectural style has been discovered in areas settled by the Urartian tribes and we have to look for it outside Urartu. It seems to me that one building uncovered in Carchemish provides a cardinal clue in this matter.

The resemblance between the Temple of the Storm God and the Urartian shrines seems to indicate a common origin and concept. As the Carchemish shrine, dated to c. 900 BC or before, is clearly much earlier than the temples of Urartu, I suggest that the standard Urartian shrine originated in Carchemish or in North Syria at large.

Six temples built to a standard pattern are known today in Urartu. They include: the temple on Altıntepe (**Fig. 09.1**), excavated by Özgüç (1966); two temples uncovered by Erzen at Çavuştepe, ancient Sardurihinili (1976/1977: 6-14; 1978: 10-11, Pl. 8b); the temple exposed by Burney at Kayalıdere (1966: 68-75); the temple of Haldi on Toprakkale, ancient Rusahinili, recently studied afresh by Erzen and his colleagues (Erzen 1962: 396-408) and the temple at Patnos-Aznavur partly exposed by Boysal and Balkan (Balkan 1960). According to Kleiss the position and remains of temples of a similar kind can be identified at Bastam, ancient Rusahinili (1972: 32-34, Figs. 24, 27), and at Werachram (1974: 91, Figs. 4-5, 11). According to Naumann (1968: 53-57) the stone structure at the foot of Van Kale is the podium of a similar temple.

The similarity in plan and structural characteristics among the above shrines is striking and has already been observed and discussed by many scholars. All the temples are square in plan and have towers or buttresses in the corners (**Fig. 09.1**). All of them have an entrance which is located at the centre of the

facade and which leads to a single, square cult room or cella. The principal dimensions of the temples vary but are still remarkably consistent. For instance, at Altıntepe the external dimensions are 13.80 x 13.80 m and those of the cella 5.20 x 5.20 m; at Kayalıdere the external dimensions are 12.50 x 12.50 m and those of the cella 5.00 x 500 m. The entrance is located in a recess; in some cases it is a double-cornered recess. In the Altıntepe temple two ashlar stones flanking the entrance contain sockets, used to secure spears. The lower part of the walls was faced with ashlar masonry. Their upper part was built with bricks (as, for instance, in the temple of Patnos-Aznavur) and plastered, the plaster being decorated with coloured paintings (as, for instance, in the temple at Altıntepe). The walls in all temples are thick, a clear indication that the building stood relatively high, probably having more than one storey. A stone bench is built along the back wall of the cella in the Altıntepe temple.

The entrance to the temple was through a courtyard or a piazza. At Altıntepe and Kayalıdere a rectangular platform or pedestal, probably intended to support a stele or an altar, was built in the courtyard in front of the entrance. At Kayalıdere, a stone base with three sockets to hold a tripod was found to the left of the platform. An intact bronze tripod supporting a cauldron, apparently of the type placed in Kayalıdere, was discovered in a tomb at Altıntepe prior to the archaeological excavations (Barnett and Gökçe 1953: 121-123, Pls. 13-14).

A number of scholars have attempted to reconstruct the superstructure of these temples. Kleiss (1963/1964) envisaged the temple on Toprakkale as a low building with a pyramidal roof. Özgüç (1966: 40-41, Fig. 1) restored the Altıntepe temple as a high building with a flat roof and four towers at the corners (**Fig. 09.2**). Akurgal (1968: 13-17, Fig. 1) restored it as a tall building with a few floors and a flat roof, adorned with a crenellated parapet of the type shown in the Kef Kalesi-Adilcevaz reliefs (see, for instance, Bilgiç and Öğün 1965: Pls. 11, 22). Naumann (1968: 50-53, Fig. 3) reconstructed a building which was lower than in the latter reconstructions, with four towers as suggested by Özgüç, and with crenellations as suggested by Akurgal. Tarhan and Sevin (1975) analysed the entrances to these temples and studied their possible reconstruction.

A second type of temple was uncovered by Oganesian in Arin-Berd, ancient Erebuni (1960: 292-294; 1961: 24-50). Unlike the square temples discussed above, it is a rectangular building with a rectangular cella and with corners which are not buttressed. Its external dimensions are 13.45 x 10.00 m and its internal ones 8.08 x 5.05 m. The lower part of the walls was built with stones and the upper part with bricks. The walls were plastered and decorated with murals. The walls are not thick and hence the structure must have been relatively low; Özgüç (1966: 40) raises the possibility that it had a gabled roof.

A third type of Urartian temple is depicted on a stone relief erected by Sargon II in his royal palace in Dur-Sharrukin (Khorsabad). The relief commemorated the sacking of the Temple of Haldi in Musasir during Sargon II's campaign to Urartu in 714 BC (**Fig. 09.3.1**). The relief is not preserved but an accurate drawing was published by Botta and Flandin (1849: Pl. 141). The temple is portrayed in neo-Assyrian schematic style and some of its details resemble elements known from Urartu: (1) the entrance is located in the centre of the facade and it is flanked by two spears secured in the ground as was obviously the case in the temple at Altıntepe; (2) metal cauldrons secured on tripods are placed in front of the entrance as in the temple at Kayalıdere; (3) round, curved shields of the type common in Urartu are shown hanging on the walls and pilasters. On the other hand, unlike the temples discussed above, the temple of Musasir had been

built on a high podium, a number of pilasters were incorporated in the facade and the building was relatively low. The roof was gabled or pyramidal and a spearhead was secured at its top - resembling the spears shown in the reliefs from Kef Kalesi, Adilcevaz (Burney and Lawson 1958: Fig. 2; Bilgiç and Öğün 1965: Pls. 11, 22-23), and the spearheads uncovered at Bastam (Calmeyer 1979). Suggested reconstructions of this edifice were published by Kleiss (1963/1964) and Naumann (1968: 45-50).

Finally we have to mention the study of Stronach (1967). He rightly assumes that the Achaemenian tower temples, Zendan-i-Suleiman at Pasargadae and Ka'bah-i-Zardusht at Naqsh-i-Rustam, were based on the model of Urartian temples. It seems, therefore, that we can restore the superstructure of the Urartian temples on the basis of the largely preserved Achaemenian tower temples. Hence Stronach concludes that the Urartian temples, being based on the model of a double cube, rose to a great height and that they had a pyramidal roof. Additional support for the notion that the temples were constructed with a pyramidal roof can be found in the Phrygian monuments with a gabled roof (see, for instance, Akurgal 1961: Figs. 67, 69-72).

In summary, the available evidence indicates the existence of three different architectural types of Urartian standard square or rectangular temples. Nevertheless, all three types resemble one another and have many basic features in common: (1) all the temples are either square or rectangular; (2) a large open area, a courtyard or a piazza, extends in front of them; (3) cultic installations are placed in the courtyard in front of the entrance; (4) the sole entrance is located in the centre of the building's facade; (5) there is a single cult room inside the temple; (6) the walls are thick, a possible indication of a high building; (7) one temple, possibly all temples, had a gabled or a pyramidal roof; (8) the lower part of the walls is faced with ashlar masonry and their upper part is built of bricks, plastered and in some cases decorated with murals.

All the Urartian standard temples seem to date to the same general period. The temple of Musasir is documented in the inscriptions and reliefs of Sargon II relating his eighth campaign in 714 BC. It is earlier in date, however, and Van Loon (1966: 42) believes that "in view of its pre-eminent status in the Urartian cult it may have been several centuries old when it was looted by Sargon". According to the Assyrian records (Luckenbill 1927: 98), statues of a son of Ishpuini (*c.* 830-810 BC) and of Argishti I (*c.* 786-764 BC) were kept in the temple - indications that it already existed in the last quarter of the ninth century BC. The structure at the foot of Van Kale carries inscriptions of Sarduri I (*c.* 840-830 BC). If Naumann's suggestion (1968: 53-57), therefore, that it is a podium for a square temple is accepted, then the earliest known Urartian temple dates to the third quarter of the ninth century. The temple at Aznavur Tepe was built by Menua (*c.* 810-786 BC). The citadel at Arin-Berd was founded by Argishti I (*c.* 786-764 BC), and hence the temple dates to his reign or later. The temple at Toprakkale was constructed either by Rusa I (*c.* 735-714 BC) or Rusa II (*c.* 685-645 BC). The temple of Altıntepe is dated by Özgüç (1966: 46) to the second half of the eighth century BC. According to Burney (Burney and Lang 1971: 150) the fortress and temple of Kayalıdere date to the second half of the eighth century, probably to the reign of Sarduri II (*c.* 764-735 BC) or alternatively of Rusa I (*c.* 735-714 BC). The citadel at Çavuştepe was founded by Sarduri II (*c.* 764-735 BC) and it was settled until the later part of the seventh century (Erzen 1978: 6, 41-47). The citadel of Werachram is dated by Kleiss to the eighth-seventh centuries BC and that of Bastam to the time of Rusa II (*c.* 685-645 BC). In summary, it seems that all the Urartian temples date to a period extending from the later part of the ninth century to the seventh century BC.

Moreover, there are no indications that such temples were constructed in Urartu prior to the middle of the ninth century BC.

The similarity, or even uniformity, in plan, shape, architectural style and decoration of all the Urartian standard temples, built over a vast territory, indicates a common origin. Moreover, all the temples clearly reflect an advanced architectural concept and style which must have been developed in a different place and later adopted by the builders of the temples. So far, no building which could have served as a proto-type of the temples or of their architectural style has been discovered in areas settled by the Urartian tribes and we have to look for it outside Urartu. It seems to me, as already hinted vaguely by Forbes (1983: 89), that one building uncovered in Carchemish provides a cardinal clue in this matter.

The excavations of the British Museum at Carchemish, carried out in the main by Woolley, exposed the remains of an impressive shrine, labelled the Temple of the Storm-God (Woolley 1952: 167-171, Pls. 29, 33-37, 41; see also Busink 1970: 524-528). The edifice (**Figs. 09.3.2** and **09.4**) stood in an enclosure in the Lower Palace Area in the Inner Town, at the foot of the acropolis of the city.

The southern part of the temple's enclosure formed a large, stone-paved courtyard, extending in front of the shrine. The remains of a rectangular basis or platform were found in the courtyard opposite the entrance to the temple. There Woolley rightly restored basalt monument B47, whose fragments were found nearby (Woolley 1952: 168, Pls. 36b, B47). This is a large rectangular basin flanked by two bulls. Woolley restored the monument with the bulls facing the entrance to the temple but it could have equally well faced in the opposite direction.

The temple is a rectangular structure measuring 13.00 x 11.80 m. The entrance, located in a recess in the centre of one of the narrow walls, opens onto a single cult room or cella. The cella is of the 'broadroom' type, and measures 8.00 x 7.10 m (Woolley 1952: 170, no. 6). The walls vary in thickness. The side wall on the eastern side is 1.60 m thick but the opposite side wall is thicker. The back wall is very thick, 3.85 m; Woolley believes that it contained a staircase but detected no material evidence to support this supposition. The lower part of the walls was faced with

> **"limestone orthostats of unusually fine quality. Of the superstructure that rested on the orthostats nothing remained** in situ**, but on the floor in front were found numerous bricks covered with a pale blue glaze on which in slight relief were rosettes with white petals and yellow centres. These must have come from the facade"**
>
> (Woolley 1952: 169, Pl. 33)

A low stone bench extended along the back wall of the cella. The floor of the cella was paved with limestone slabs. A stone socket for securing the hinge of the door was found *in situ*, embedded in the floor inside and to the left of the entrance, and a socket for securing a bolt was found on the opposite side, proving that the entrance contained one door which could be bolted.

The Temple of the Storm God can be fairly accurately dated. Two basalt orthostats, bearing Hittite hieroglyphic inscription A2+A3, were found *in situ* flanking the entrance to the temple (Hogarth 1914: sketch plan, Pls. A2-A3; Woolley 1952: 169, Pls. 29, 34b). The author of the inscription is King Katuwas of Carchemish, who discusses the erection of the Temple of the Storm God (Meriggi

1967: 53-57). In following Barnett (*apud* Woolley 1952: 263-266) it is generally agreed upon (for instance, Hawkins 1974: 70) that Katuwas reigned before Sangara. Sangara is mentioned in the Assyrian inscriptions of Ashurnasirpal II and Shalmaneser III between 867-849 BC, and hence the reign of Katuwas is dated to *c.* 900 BC This date can serve as a general indication for dating the temple.

Woolley believed that the temple is in fact older in date and hence that Katuwas had only remodelled it (Woolley 1952: 170). His conclusion can perhaps be supported by Stele A4b found *in situ*, secured to the pavement at the back corner of the courtyard, near the side wall of the temple (Hogarth 1914: sketch plan, Pl. A4b; Woolley 1952: 167, Pl. 29). It bears Hittite hieroglyphic inscription A4b, whose author was a king of Carchemish who lived at least a few generations before Katuwas, probably in the earlier part of the tenth century BC (Hawkins 1974: 70-72).

Another building uncovered in Carchemish, labelled the 'Hilani' (**Fig. 09.5**), is of a similar kind though slightly later in date (Woolley 1952: 179-184, Pls. 38-41; see also Busink 1970: 528-536). It is square, measuring *c.* 18.00 x 18.00 m. The entrance is through a recessed portico containing two columns. A second portico was apparently built in the doorway; the position of two rectangular bases, probably basalt bases decorated with animals, could be detected on the threshold. The building contained a single chamber of the 'broadroom' type, measuring 14.00 x 6.50 m. The front wall was *c.* 5.00 m wide and the two side walls *c.* 2.30 m wide. The back wall, however, was 7.00 m wide and Woolley uncovered sufficient data to conclude that it contained a staircase. Basalt orthostats lined the lower part of the walls. Fragments of basalt reliefs in Neo-Hittite style which were embedded in the foundations indicate the relative late date of the building in the Neo-Hittite period. Woolley saw the resemblance of the 'Hilani' to the Temple of the Storm God and he raised the possibility that both "buildings were funerary chapels for the Kings of Carchemish" (1952: 184).

The architectural resemblance of the 'Hilani' to the Temple of the Storm God shows that the latter is not a unique phenomenon but represents a type of temple which embodies a crystalised architectural style and tradition in Carchemish. The resemblance of the latter shrine to the standard Urartian temple is obvious. Both types are square or nearly square and had thick walls, a feature which indicates a great height. Both types contained a single chamber, *i.e.* cella, and are nearly similar in size. In both types the lower part of the walls was lined with orthostats and the upper part was decorated with mural paintings or polychrome glazed bricks. The Carchemish shrine also opened into a spacious courtyard where a large cultic basin was placed.

The resemblance between the Temple of the Storm God and the Urartian shrines seems to indicate a common origin and concept. As the Carchemish shrine, dated to *c.* 900 BC or before, is clearly much earlier than the temples of Urartu, we suggest that the standard Urartian shrine originated in Carchemish or in North Syria at large. Thus between Urartu and North Syria during that period we have an additional indication of the strong cultural connections which are well known in other spheres (see Çilingiroğlu 1984).

It may well be that we can trace this type of temple back to the Middle Bronze Age. Hrouda (1971: 258) indicated its possible connection with a similar building which has buttressed corners, probably a temple, from Kültepe, which dates to the period of Karum Ib (Özgüç 1964: 47, Pls. 19-20). As already hinted by Van Loon (1966: 45, no. 16), however, it seems that the Carchemish/Urartian

temple type should be related to a certain group of temples in the Levant. These temples are rectangular, have thick walls - an indication of a great height - and contain a single chamber, a cella, which opens on to one of the narrow sides. The best example is the 'fortress-temple' from Tell Balatah, ancient Shechem (**Fig. 09.6**), which dates to the final part of the Middle Bronze Age (Wright 1965: 80-95; Figs. 36-50). As at Carchemish and Urartu, so also here, cult symbols and altar were placed in the courtyard in front of the temple. A similar temple, dated by the excavators to the Late Bronze Age, was uncovered in Megiddo (Loud 1948: 102-105). Similar temples, Temple N, Temple B1 and possibly Great Temple D, were uncovered in Tell Mardikh, ancient Ebla (Matthiae 1981: 125-132). They all date to period Mardikh IIIA-B, *i.e.* the Middle Bronze Age. Finally we should mention the Long Temple uncovered in Area A at Hazor (Yadin 1972: 102-104).

Summing up, it seems that the above-discussed fortress or tower temple with a single chamber has a long tradition. It can possibly be traced back to the Levant in the Middle Bronze Age. It had appeared in Carchemish at the beginning of the First Millennium and was then adopted in Urartu as a standard type of temple. Finally, its plan and shape were adopted in Iran for the construction of the Achaemenid tower temples.

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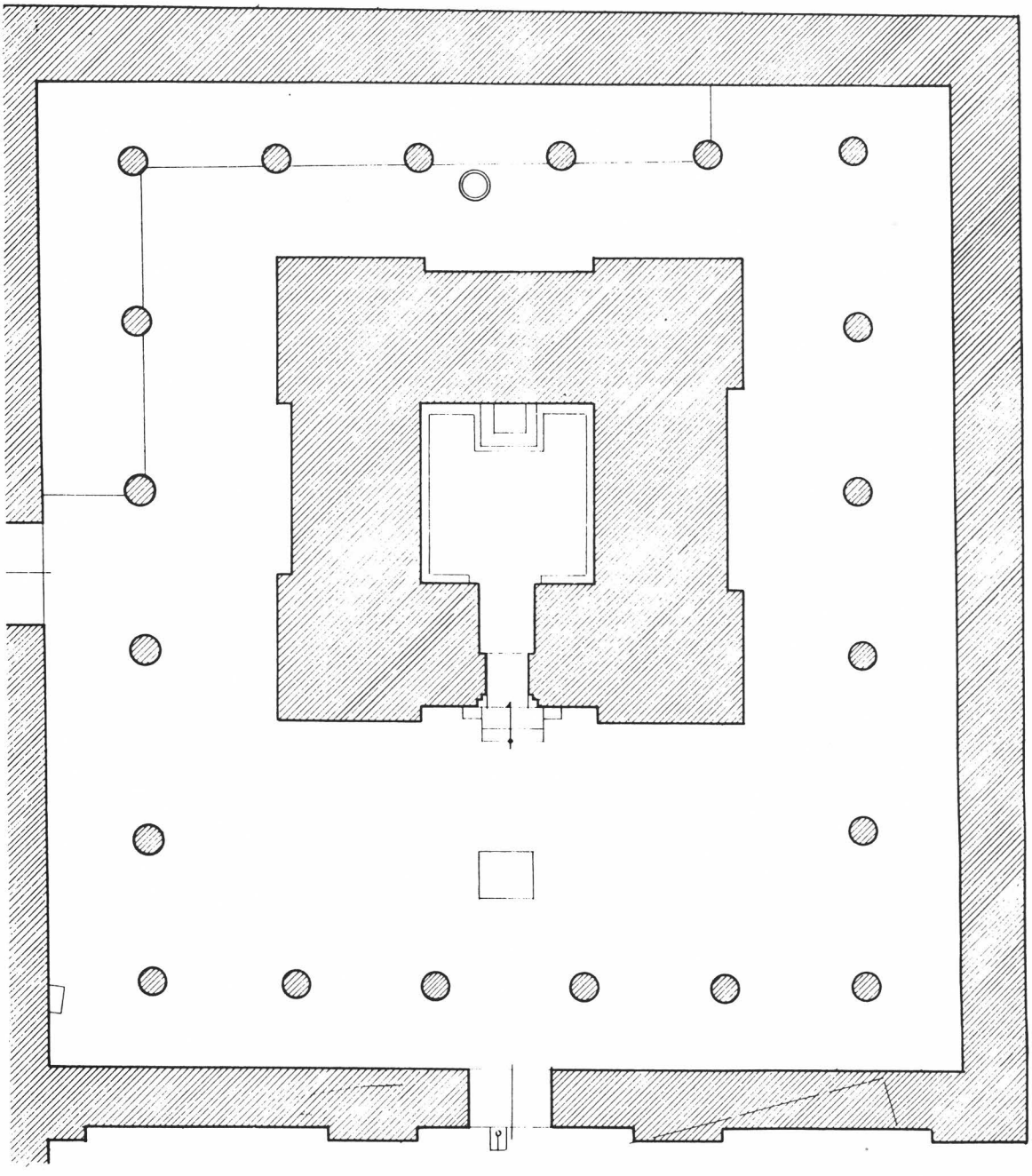

Fig. 09.1 The temple of Altıntepe (after Özgüç 1966: Pl. 4).

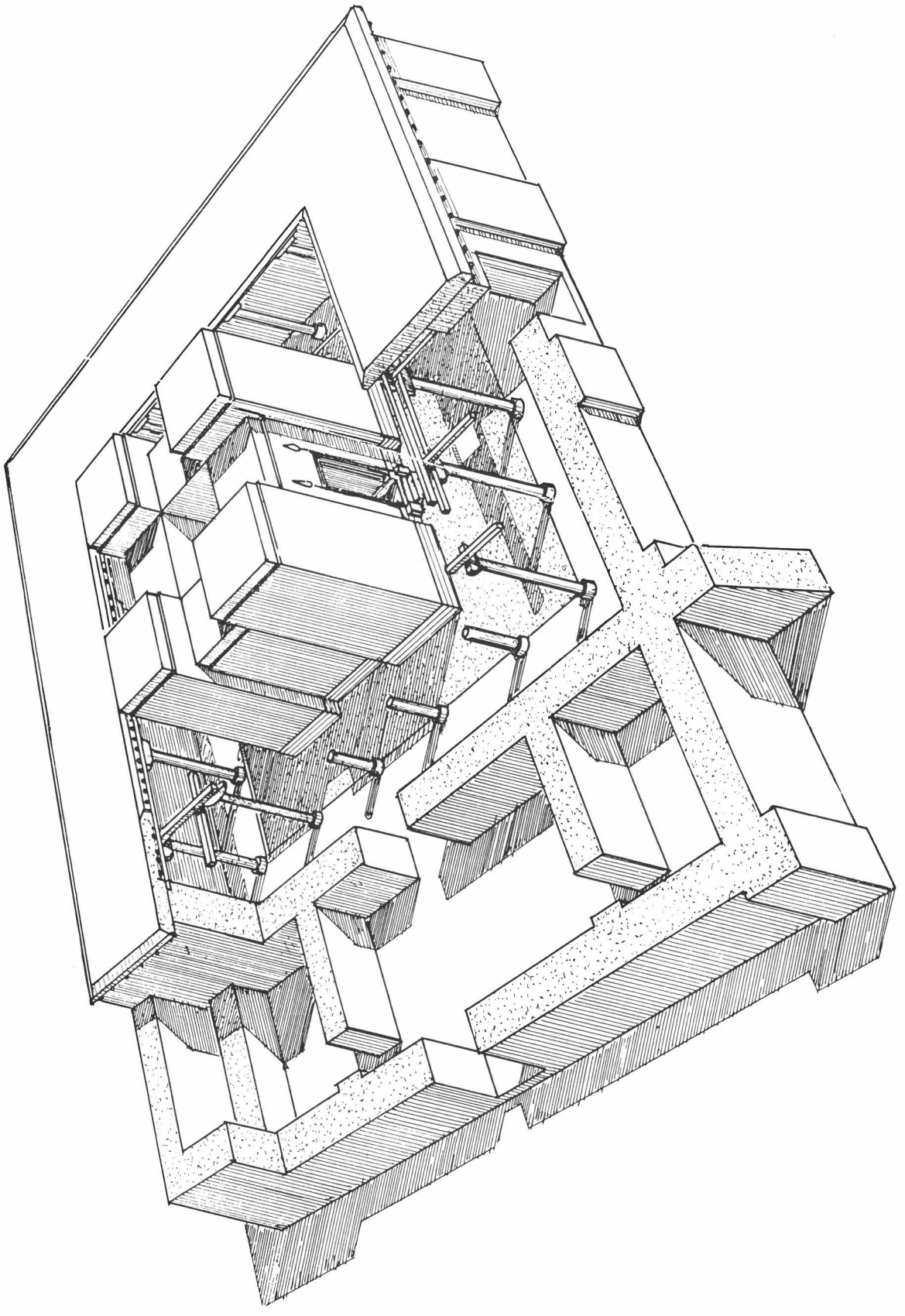

Fig. 09.2 A suggested reconstruction of the temple of Altıntepe (after Özgüç 1966: Fig. 1).

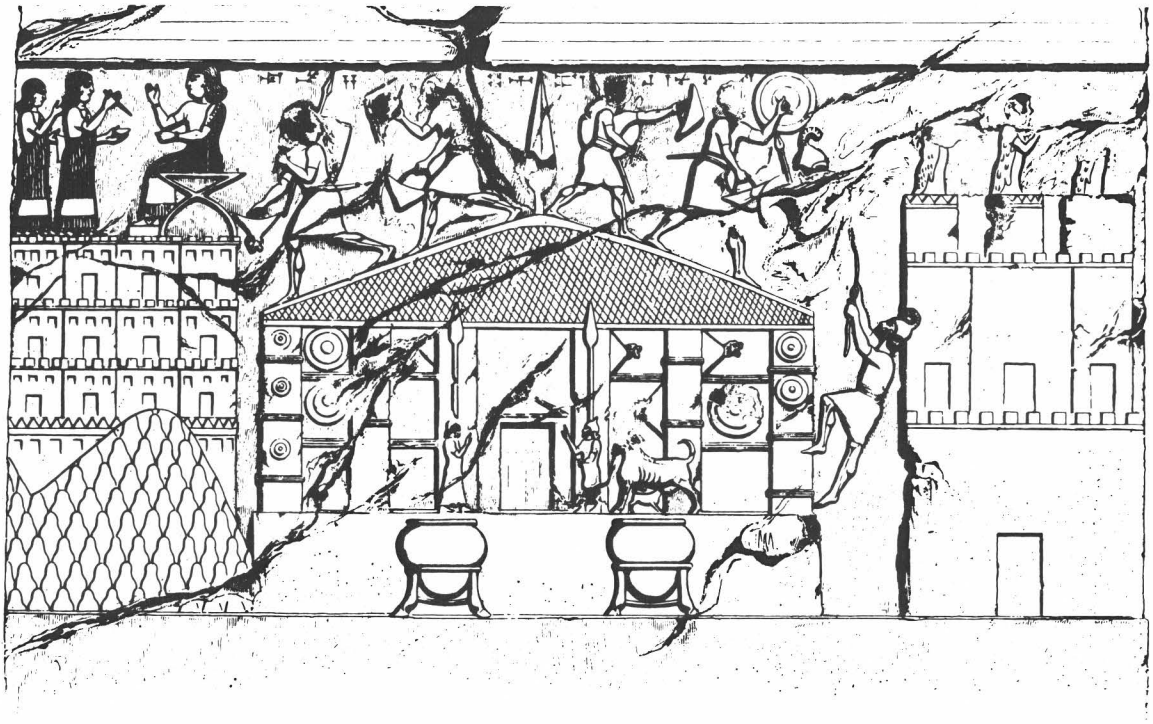

Fig. 09.3.1 The temple of Musasir (Boehmer 1973: 514, Fig. 48 after Botta and Flandin 1849: Pl. 141).

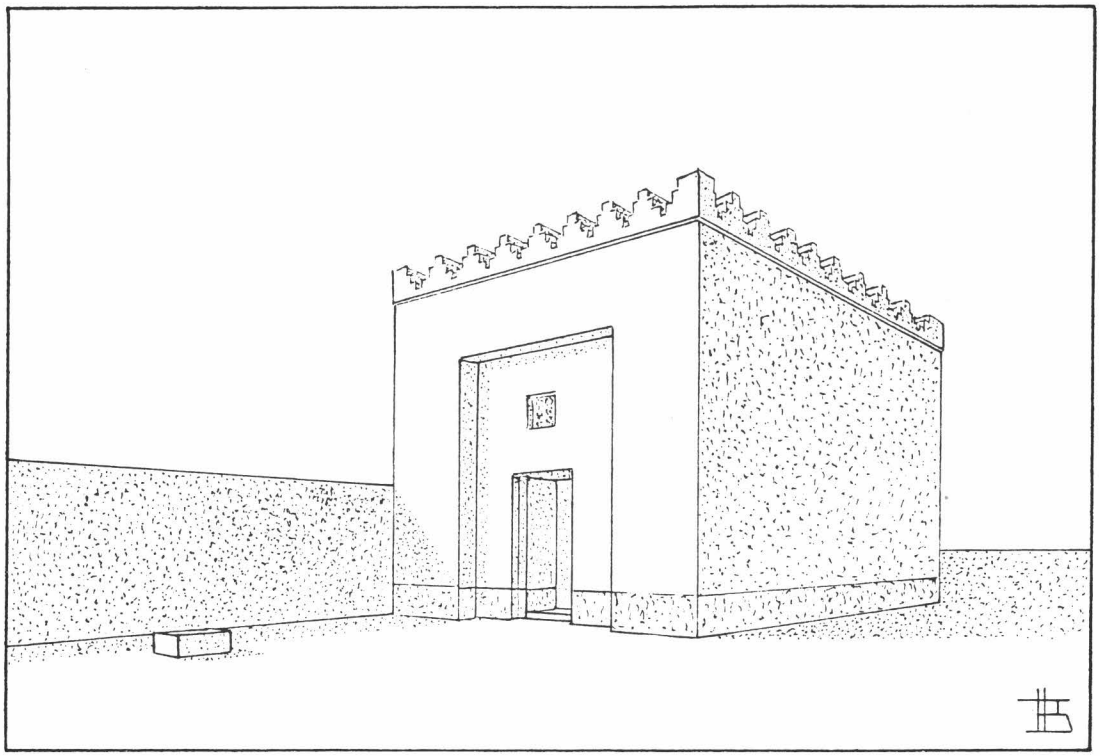

Fig. 09.3.2 A suggested reconstruction of the Temple of the Storm God, Carchemish (after Busink 1970: 525, Fig. 151).

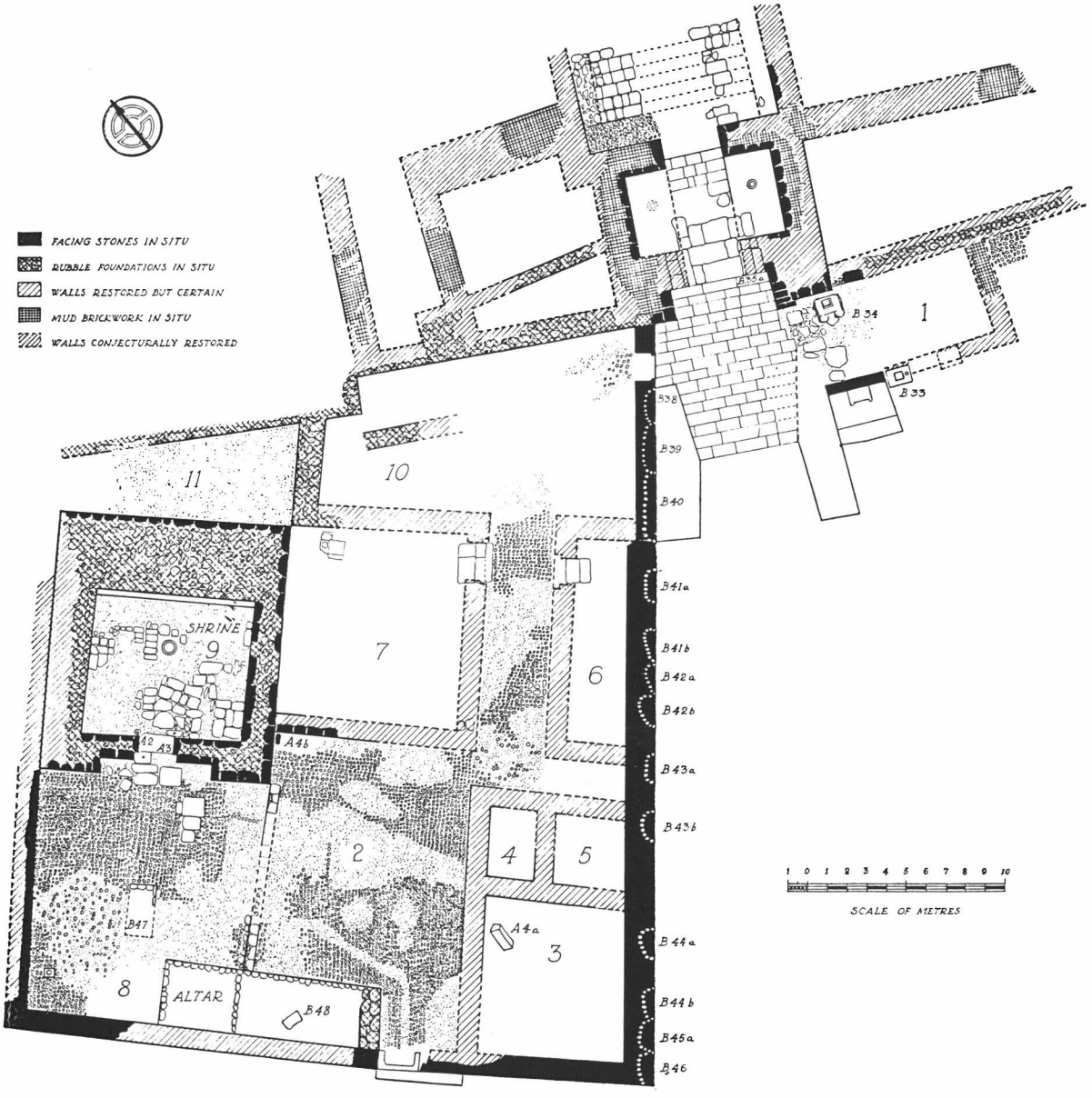

Fig. 09.4 The Temple of the Storm God, Carchemish (after Woolley 1952: Pl. 29).

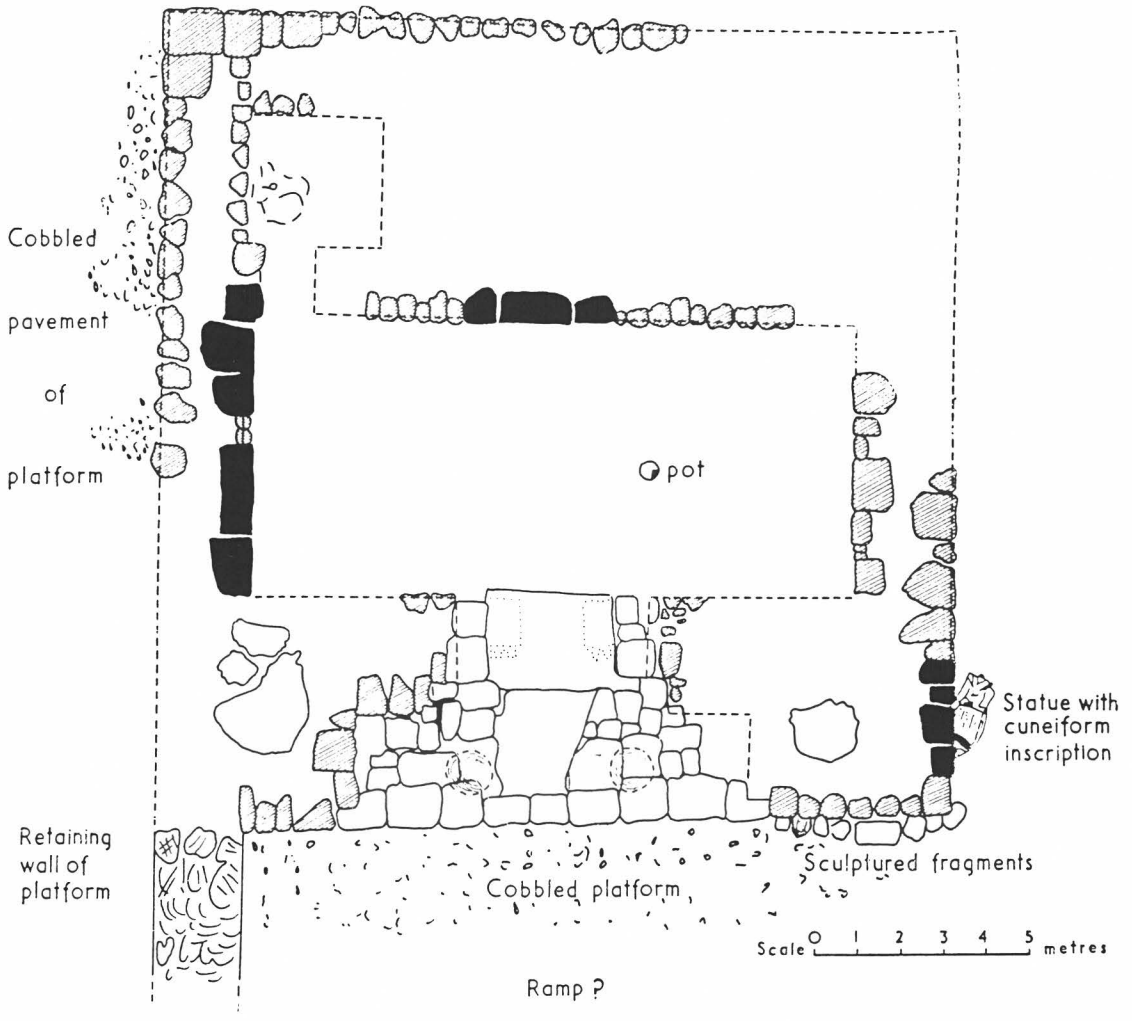

Fig. 09.5 The 'Hilani' in Carchemish (after Woolley 1952: Pl. 38).

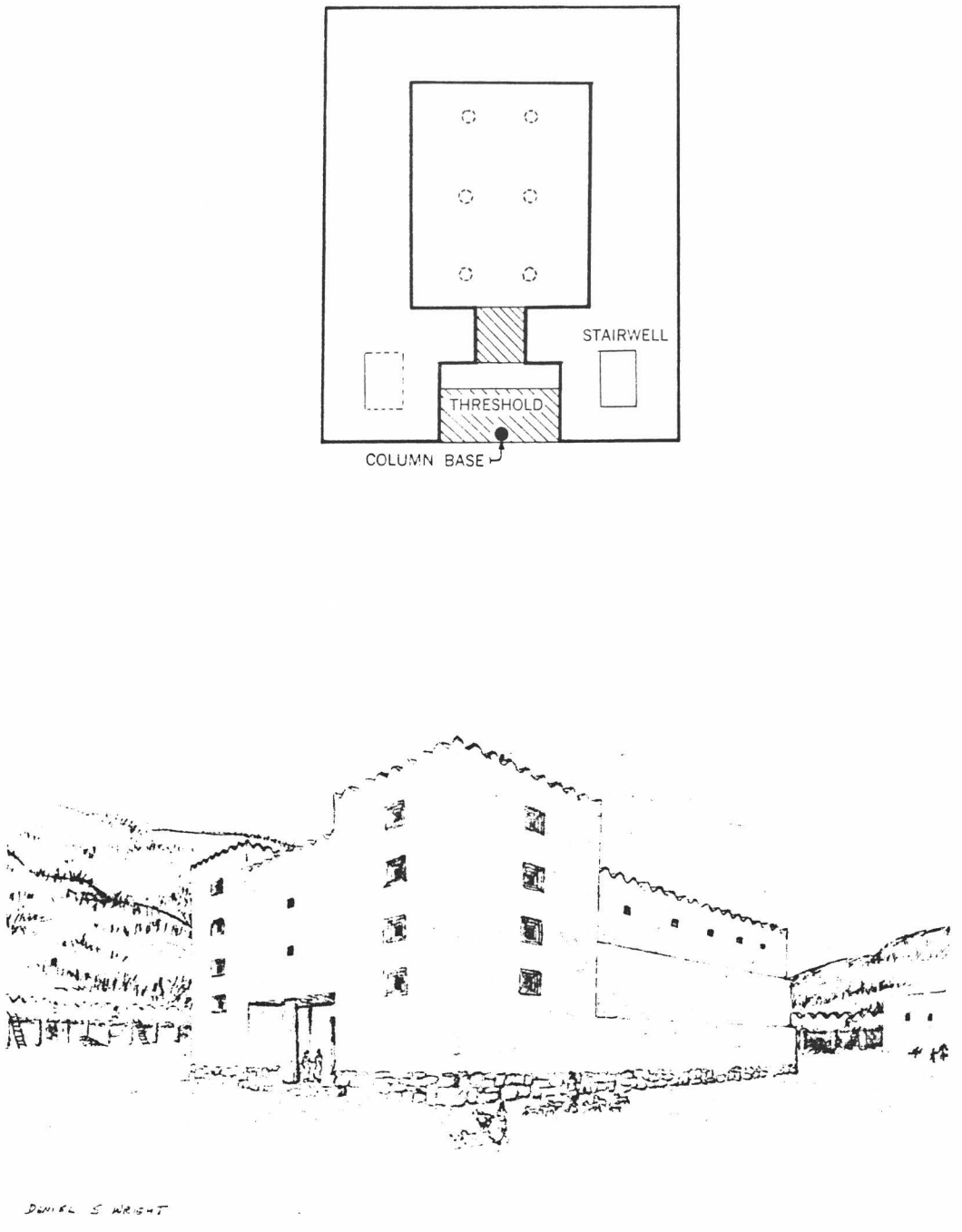

Fig. 09.6 The 'fortress-temple' in Tell Balatah, ancient Schechem;
a ground-plan and suggested reconstruction (after Wright 1965: Figs. 41, 47).

10. URARTIAN BELT FRAGMENTS FROM BURMAGEÇİT, NOW ON DISPLAY IN ELAZIĞ MUSEUM

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Elazığ

During road construction work carried out in 1985 a group of Urartian objects was discovered by chance in the village of Burmageçit in the province of Tunceli.

In this paper I would like to discuss the belt fragments which accompanied the other finds. In the records of the Elazığ Museum there are 19 bronze belt fragments from Burmageçit. They will be examined here under six categories:

A) decorated with plain, simple bands (nos. 1-3)
B) decorated with zigzags (nos. 4-8)
C) decorated with animal motif friezes (nos. 9-12)
D) decorated with hunting scenes (nos. 13-15)
E) decorated with cavalryman motifs (no. 16)
F) decorated with different motifs (nos. 17, 18).

Conclusion: Taking into consideration the decoration on other Urartian finds, I date the belt fragments, unearthed from the same place or from the same cemetery or grave in Burmageçit, to the time of Argishti I (785-760 BC) and his son Sarduri II (760-730 BC).

During road construction work carried out by the Köy Hizmetleri in 1985, a group of Urartian objects was discovered by chance in Burmageçit village, Tunceli province. According to information received from the authorities of the Elazığ Museum, the finds were originally looted by the villagers living in the vicinity and that the gendarmerie later confiscated them from the villagers. Unfortunately, it was then impossible to recover any information concerning either the condition of the finds at the time they were found or the graves from which they came.

Among the finds brought to the Elazığ Museum, there were no objects of baked-clay. I also believe that the Museum was unable to recover all the objects found in the Burmageçit village because there are pieces missing from those that survive.

In this paper I would like to discuss the belt fragments which accompanied the other finds. In the records of the Elazığ Museum there are 19 bronze belt fragments from Burmageçit. They will be examined here under six categories:

A) decorated with plain, simple bands (nos. 1-3)
B) decorated with zigzags (nos. 4-8)
C) decorated with animal motif friezes (nos. 9-12)
D) decorated with hunting scenes (nos. 13-15)
E) decorated with cavalryman motifs (no. 16)
F) decorated with different motifs (nos. 17, 18).

As can be understood from these categories, the belt fragments have been arranged into groups according to decoration.

A) Belt fragments decorated with plain, simple bands: The fragments under this heading probably belong to those belts whose decoration was unfinished (**Fig. 10.1**) (1). (2)

The belt (**Fig. 10.1**) is decorated with narrow and long bands which are perpendicular to the edge of the belt. These bands are straight and plain. One fragment of the belt is composed of an empty panel and has a row of holes (3) on the edge which is now twisted and destroyed.

The fragment (**Fig. 10.2.1**) is the beginning portion of a belt whose edge is now folded backwards. Along this folded edge there is a row of holes and another row of holes for rivets on the horizontal edge of the fragment. The bands on this fragment, however, are not decorated.

Illustrated here (**Fig. 10.2.2**) is a fragment from the corner of a belt-end. There is a row of holes along the perpendicular edge of this fragment and another row of nail heads (rivets) on the horizontal edge; the latter appear at longer intervals than the former. This belt piece is composed of six bands excluding the edge portion which has holes in it. Again, the bands are not decorated.

Belts have a special place in Urartian art. They are usually decorated with different motifs. The belt fragments, however, examined in this category are composed only of plain bands. I believe that these fragments should belong to those belts which had not yet been decorated or finished.

B) Belt fragments decorated with zigzags: In this category some of the horizontal bands are decorated with geometric motifs. Apart from the zigzag adornment there are no other differences between these belts and the belts examined in category A. The fragments in this group belong to the category of belts which are decorated with alternating zigzags and plain bands.

One of the long edges of a belt (here illustrated **Fig. 10.3**) remains in very good condition with a row of holes on its complete edge. This belt is composed of five parallel bands, with the outer and middle bands decorated with zigzag motifs; the remaining bands are plain. This broken fragment is twisted in several places.

On another belt fragment (**Fig. 10.4.1**) there are seven bands. Beginning with the edge band there is one row decorated with zigzag motifs, the next is plain. It continues in this fashion, alternating between bands of zigzags and plain bands. There is a row of holes on the edge of this belt fragment which is folded into two.

In this fragment (**Fig. 10.4.2**) one side of the belt is broken whereas the other side is complete. There is a row of holes on its edge. The belt is made up of five rows of alternating zigzag and plain bands. The broken fragment is folded into two.

Here (**Fig. 10.5.1**) the fragment, which is the corner portion of a belt end, is folded into two and is very much damaged. On the edge of the complete portion there is a row of holes. The bands on the edges and at the middle are decorated with zigzag motifs.

The broken fragment (**Fig. 10.5.2**) is twisted at several places. Along the complete edge there is a row of holes. The bands on the belt are composed of alternating zigzag and plain bands. The plain bands are broader than the decorated bands.

Bands decorated with zigzags were very common motifs in Urartian art during the 8th and 7th centuries BC. Kellner (1982: 208) stated that Seidl dated this kind of decoration to the periods of Argishti I and Sarduri II.

In the Near Eastern Department of the İstanbul Archaeological Museum there is a similar belt piece (decorated with zigzags), together with an inscription indicating that it belongs to the period of Sarduri II (Belli and Kellner 1986: 321). There are also other belt fragments decorated in the same manner in the İstanbul Archaeological Museum (Taşyürek 1975: Fig. 65). The same kind of motif is found, for example, on the edge border of an ornament worn on the forehead of a horse (Özgen 1984: 94, 135, Fig. 8), and on a decorated disc which was most probably brought from eastern Anatolia and which is now in a private collection (Özgen 1984: 113, Fig. 38). It is also found on the edge border of a bronze Urartian panel (Işık 1985: 75, Pl. 1)

A plaque which was found at Giyimli and which is now in the Prähistorische Staatssammlung, München (Kleiss 1976: no. 145, Fig. 7) and a helmet which is again in the same Museum (Kellner 1982: 208, Figs. 1-6) are both decorated with the same zigzag motif. Zigzag motifs are also seen on the two helmets and the quiver belonging to the Sarduri II period which were found at the Karmir Blur excavations (Piotrovski 1980: 147, Fig. 108; 150, Fig. 111; 131, Figs. 98, 99). One of these helmets was dated to the Sarduri II period whereas the other was dated to the Argishti I period.

C) Belt fragments decorated with animal motif friezes: The fragments in this category belong to the group of belts which have friezes decorated with animal motifs placed in-between bands decorated with zigzags. These animals which are mostly depicted as mythological creatures are arranged back to back, one after another.

The fragment (**Fig. 10.6.1**) is the corner piece of a belt end. Along the edge there is a row of holes at 0.5 cm intervals. In the bands which are perpendicular to the edge there are zigzag decorations and animals marching towards the right. In each row there is only one complete animal. On the lower band, however, part of a second and complete animal can be seen. All the animals are winged and they have curly tails which have been portrayed as being stretched upwards. The muscles on the legs of the animals are also visible.

On this fragment (**Fig. 10.6.2**) there are three rows of friezes decorated with animals and between these rows there are two bands decorated with zigzags. There are three animals in the upper frieze, five in the middle one and four (two of which are not complete) in the lower frieze. All the animals are winged but they have different shaped tails.

Here (**Fig. 10.7.1**) there are two belt fragments which have two different inventory numbers in the Museum records but which are complementary to each other. On the lower edge there is a row of holes. There are two rows of friezes with animals in-between three bands or rows decorated with zigzags. There are three animals in the upper frieze and six in the lower. Like the other fragments, the animals are shown in line, one after the other. All the animals have wings and they are marching towards the left. Only the winged horses can be described as galloping.

This small fragment (**Fig. 10.7.2**) is composed of two parts. The upper band is decorated with zigzags, the lower frieze with animal motifs. On the frieze there is a winged lion(?) whose curly tail is again shown as stretching upwards.

As seen above, the belt fragments in this category have very close similarities. The friezes with animals are larger than the bands decorated with zigzags and among the animals, which are all winged, legendary creatures are also seen. Although it is difficult to state the type of animals on the friezes, the winged lion, the winged bull and the winged horse are unambiguous. Apart from the two galloping horses, all the other animals are depicted as walking.

The same kind of decoration (composed of winged animals) can be also observed on the bronze discs which are now in the Prähistorische Staatssammlung, München (Özgen 1984: 114, Figs. 40, 41). The inscribed shields which belong to Argishhti I and Sarduri II and which were found at Karmir Blur are also decorated with animals marching in a line (Piotrovski 1980: 137, 143, 151, Figs. 103, 105).

D) Belt fragments decorated with hunting scenes: The pieces in this category are not decorated with bands and friezes with animal motifs like the other groups but are hunting scenes which are executed on larger fields.

The first (**Fig. 10.8.1**) is decorated with a hunting scene consisting of two chariots and three hunters on each chariot. Two of the helmeted hunters are spearmen and the third is a charioteer. The two spearmen are shooting arrows from the back and from the front of the chariot. In the background the head and the front leg of an animal can be seen.

Another piece (**Fig. 10.8.2**) is also ornamented with a hunting scene. This time there are four chariots and three hunters on each chariot. Two of the hunters are spearmen who are shooting arrows to the back and front of the chariot and the third hunter is the charioteer. The horses are shown as galloping. Behind the chariots there are some figures, most probably fighting with wild animals. These pieces are oxidised and severely damaged.

There is again a hunting scene on this belt fragment (**Fig. 10.9**). The helmeted hunter, in the middle, is wearing a pleated garment and, spear in hand, fighting with an animal. There is another helmeted hunter represented below him. The second hunter is wearing two belts, one on the waist and the second from his shoulder to his waist. It is difficult to determine the type of animal illustrated in front of him. On the hunter's left can be seen the surviving portions of a hunter and another animal.

During the Urartian period it was very common to decorate belts with hunting scenes. These hunting scene illustrations are mostly produced in bands or friezes and have usually two soldiers or hunters on the chariots. On our first two examples, however, there are three hunters on very typically Urartian chariots. For each chariot there is a single, thick arrow extending as far as the horses. In addition, we can see a slanting thin connection between this arrow and the chariot. The chariots have eight-spoked wheels. The chariots on these belt fragments are very similar to the chariots on the panels belonging to Argishti I and found at Giyimli. These panels are now in the Prähistorische Staatssammlung, München (Özgen 1983: 117, Fig. 4-5). Another belt which is decorated with a hunting scene that includes the typical chariot was found at Kayalıdere (Burney 1966: 78, Fig. 10). On the chariot there are again three hunters using arrows and spears. I learn from Muslubaş (1976: 273) that there is another similar belt fragment in the

İstanbul Archaeological Museum. Muslubaş, however, did not publish any drawings or photographs of this piece. I date an Urartian pin, found at Kayalıdere, to the 7th century BC (Yıldırım 1983: 176).

The hunter on the third example is wearing a different type of garment. The same type of garment with pleated ornamentation is seen on a small bronze statuette found at Toprakkale, now in the British Museum. This statuette, which is described as belonging to the Middle Urartian period by Akurgal (1968: 28, Pl. 2), is dated to 685-645 BC.

E) Belts decorated with cavalryman motif: There is only one example in this category (**Fig. 10.10.1**).

In this fragment (**Fig. 10.10.1**) the end of a belt is preserved. There are five rectangular panels on this piece. In each panel a cavalryman motif is drawn. The horses are illustrated as galloping on their back feet; the cavalrymen wear helmets and hold shields. On the edge border there are four rivets. The cavalrymen hold their spears parallel to their bodies. The shields cover their right arms and on their backs there are objects which are most probably quivers. The cavalrymen wear long garments.

The horses are tall and have thin, long feet. They wear crests. The tails look like a tassel with the inside hatched. The tails fall parallel to the legs.

A similar belt fragment is seen in the Adana Museum (Taşyürek 1975: Fig. 9, Pl. 31). The horses, however, on this piece are not shown as galloping. Similar cavalrymen motifs are also found on an ornament worn on the forehead of a horse. This ornament is now in the İstanbul Museum (Tarhan and Sevin 1975: 45, Fig. 2). This particular horse ornament is dated to the first half of the 8th century BC (the period of Argishti I and Sarduri II) by Tarhan and Sevin. On the other hand, Çilingiroğlu states (1981: 53) that the conical helmets are very commonly used in the Urartian and Assyrian arts in the 8th - 7th centuries BC.

F) Belt fragments decorated with various motifs: There are two belt fragments in this category. The greater part of these belts, which are decorated with differing motifs, is missing.

The first (**Fig. 10.10.2**) is decorated with two rows of cones and below them a rosette. The central part of the rosette is like a button, whereas the petals are like carrot slices.

Rows of cones are commonly used in Urartian art in the period between Menua and Sarduri II. It was also employed on pectorals, belts, shields and harnesses (Kellner 1980: 57-67). In the Prähistorische Staatssammlung, Museum für Vor-und Frühgeschichte, München, there is a belt fragment which is completely decorated with rows of cones (Belli and Kellner 1986: 317, Pl. 2 Fig. 2). Rosette decoration is also common on Urartian belts (Çilingiroğlu 1979: 49, Figs. 2, 4). Both a row of cones and a rosette can be seen on the cheek piece of a helmet found at Çavuştepe. This find was dated to the period of Sarduri II (Belli 1983: 325, Fig. 8).

The second belt fragment (**Fig. 10.10.3**) is decorated with various lines in relief, *i.e.* cross-hatched, thick and narrow. One of the motifs is most probably the end of a wing. The lines in this motif are executed in a fish-bone pattern. On the lower edge there are half-moon shaped motifs arranged one after another. Between

these and the wing motif there are two rosettes whose petals are scattered. It is not clear whether this fragment belongs to a belt since we do not see such decoration on other belt fragments.

The reversed half-moon motifs on this fragment look like the scales of a fish or a pine cone. A similar motif is seen on the end of the sceptre, belonging to Ishpuini, in the Van Museum (Belli and Kavaklı 1981: 17, Fig. 1).

Conclusion: Taking into consideration the decoration on other Urartian finds, I date the belt fragments, unearthed from the same place or from the same cemetery or grave in Burmageçit, to the time of Argishti I (785-760 BC) and his son Sarduri II (760-730 BC).

Catalogue

Fig. 10.1
Inv. no.: 85.1.39
Analysis: Cu 81.73; As 4.01; Pb 0.22; Sn 576 (x)
Dimensions: length 20 cm; width 8 cm

Fig. 10.2.1
Inv. no.: 85.1.47
Analysis: Cu 79.63; As 3.79; Pb 0.09; Sn 0.39
Dimensions: length 7.5 cm; width 8.5 cm

Fig. 10.2.2
Inv. no.: 85.1.44
Analysis: Cu 83.03; As 42.0 (xx); Pb 0.40; Sn 0.75
Dimensions: length 11 cm; width 9 cm

Fig. 10.3
Inv. no.: 85.1.40
Analysis: Cu 75.37; As 55.0 (x); Pb 45.8 (x); Sn 0.31
Dimensions: length 20 cm; width 7 cm

Fig. 10.4.1
Inv. no.: 85.1.49
Analysis: Cu 83.37; As 42.9 (x); Pb 0.07; Sn 0.50
Dimensions: length 13.5 cm; width 7.5 cm

Fig. 10.4.2
Inv. no.: 85.1.43
Analysis: Cu 74.78; As 1.53; Pb 0.04; Sn 0.55
Dimensions: length 7.5 cm; width 7 cm

Fig. 10.5.1
Inv. no.: 85.1.52
Analysis: Cu 79.34; As 5.93; Pb 0.04; Sn 0.37
Dimensions: length 10 cm; width 8 cm

Fig. 10.5.2
Inv. no.: 85.1.55
Analysis: Cu 81.68; As 1.53; Pb 0.02; Sn 1.90
Dimensions: length 10 cm; width 7 cm

Fig. 10.6.1
Inv. no.: 85.1.54
Analysis: Cu 84.76; As 166.3 (x); Pb 0.60; Sn 0.82
Dimensions: length 7 cm; width 11 cm

Fig. 10.6.2
Inv. no.: 85.1.46
Analysis: Cu 85.80; As 3.74; Pb 0.60; Sn 2.45
Dimensions: length 12 cm; width 8 cm

Fig. 10.7.1
Inv. no.: 85.1.83 and 85.1.85
Analysis: Cu 82.89; As 120.6 (x); Pb 0.6; Sn 0.70; Cu 82.14; As 95.5 (x); Pb 0.6; Sn 0.14
Dimensions: length 17.5 cm; width 8 cm

Fig. 10.7.2
Inv. no.: 85.1.84
Analysis: (not analysed)
Dimensions: length 5.5 cm; width 3.5 cm

Fig. 10.8.1
Inv. no.: 85.1.51
Analysis: Cu 80.60; As 5.09; Pb 0.5; Sn 623 (x)

	Dimensions: length 3.5 cm; width 8 cm
Fig. 10.8.2	*Inv. no.*: 85.1.53
	Analysis: Cu 87.96; As 138 (x); Pb 0.50; Sn 0.47
	Dimensions: length 10 cm; width 10 cm
Fig. 10.9	*Inv. no.*: 85.1.50
	Analysis: Cu 77.58; As 5.37; Pb 0.5; Sn 0.16
	Dimensions: length 5.5 cm; width 4 cm
Fig. 10.10.1	*Inv. no.*: 85.1.48
	Analysis: Cu 76.38; As 0.23; Pb 0.05; Sn 1.78
	Dimensions: length 5 cm; width 17 cm
Fig. 10.10.2	*Inv. no.*: 85.1.45
	Analysis: Cu 82.76; As 92.8 (x); Pb 0.1; Sn 0.6
	Dimensions: length 7.5 cm; width 6 cm
Fig. 10.10.3	*Inv. no.*: 85.1.56
	Analysis: Cu 82.19; As 107.5 (x); Pb 0.05; Sn 0.57
	Dimensions: length 6.5 cm; width 6 cm

Notes

1. (x): ppm type.
2. Some of the Burmageçit finds were analysed by Prof. Dr. Şeraf Kunç at the chemistry laboratory of the Science and Literature Faculty of Fırat University.
3. These holes are stitch-holes for attaching the leather *etc.* backing.

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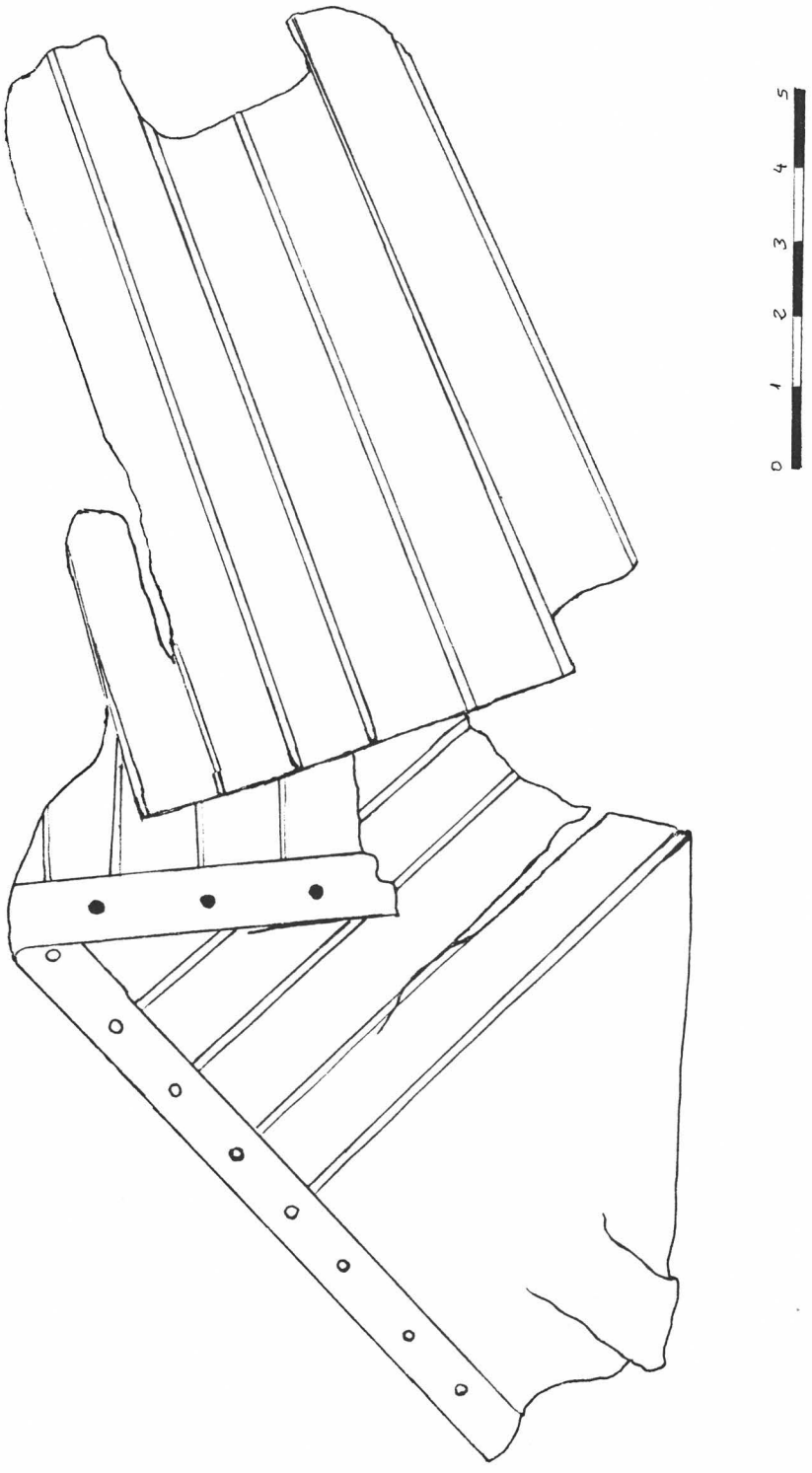


Fig. 10.1 Urartian belts: Category A.

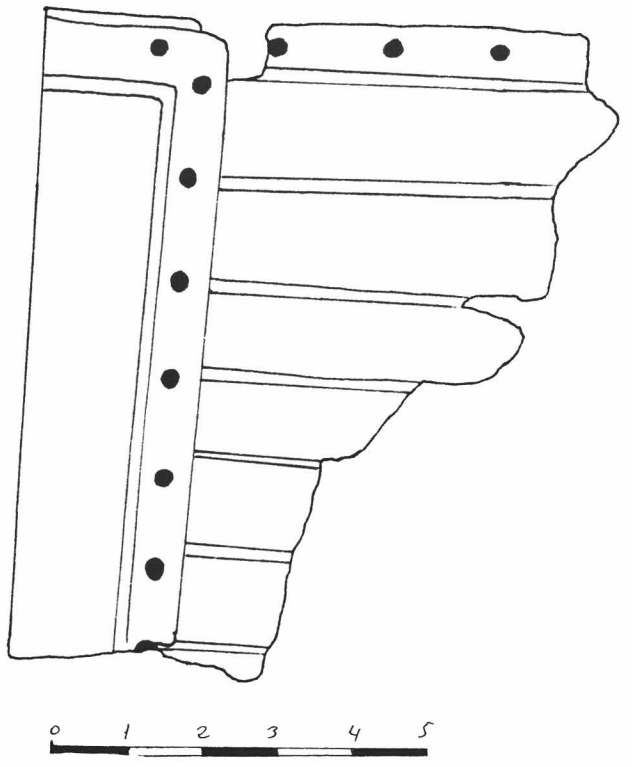


Fig. 10.2.1 Urartian belts: Category A.

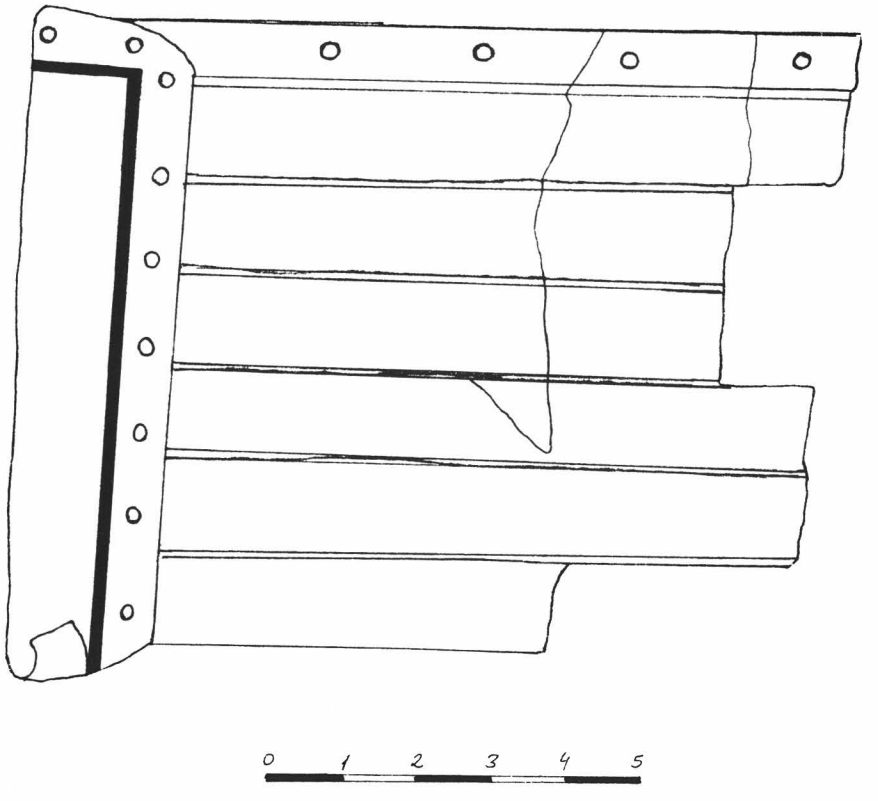


Fig. 10.2.2 Urartian belts: Category A.

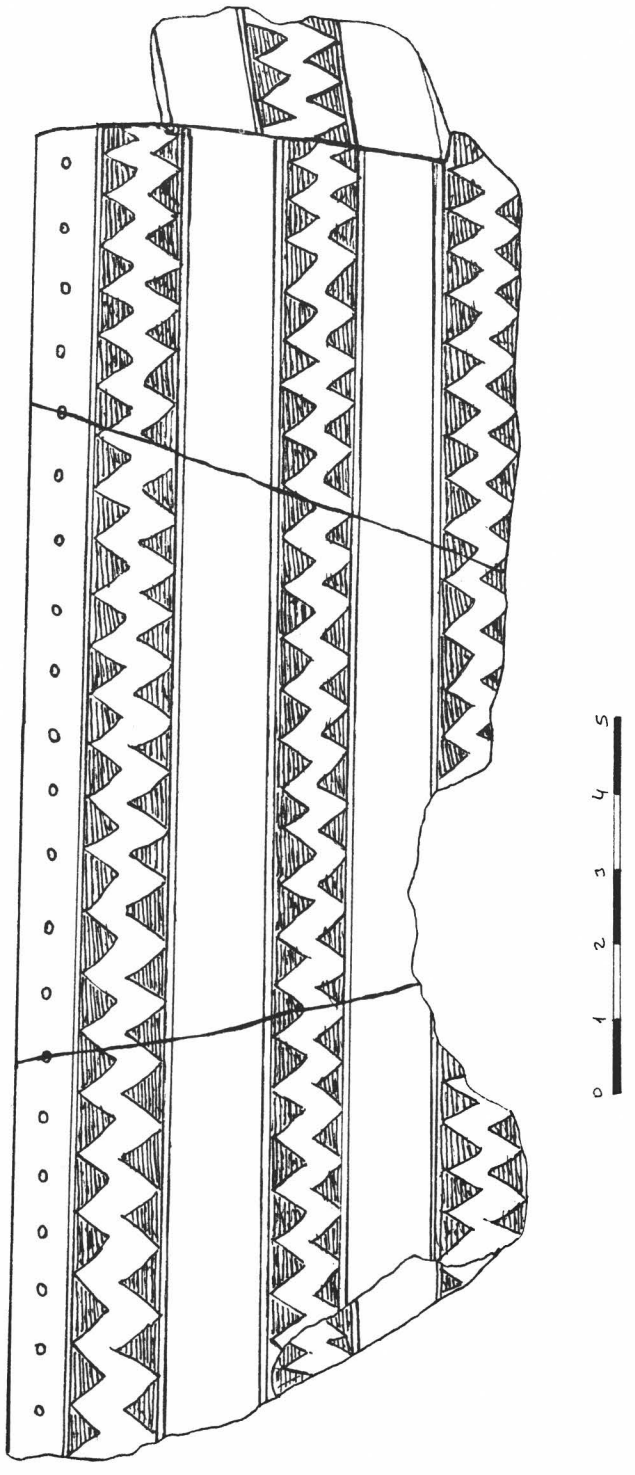
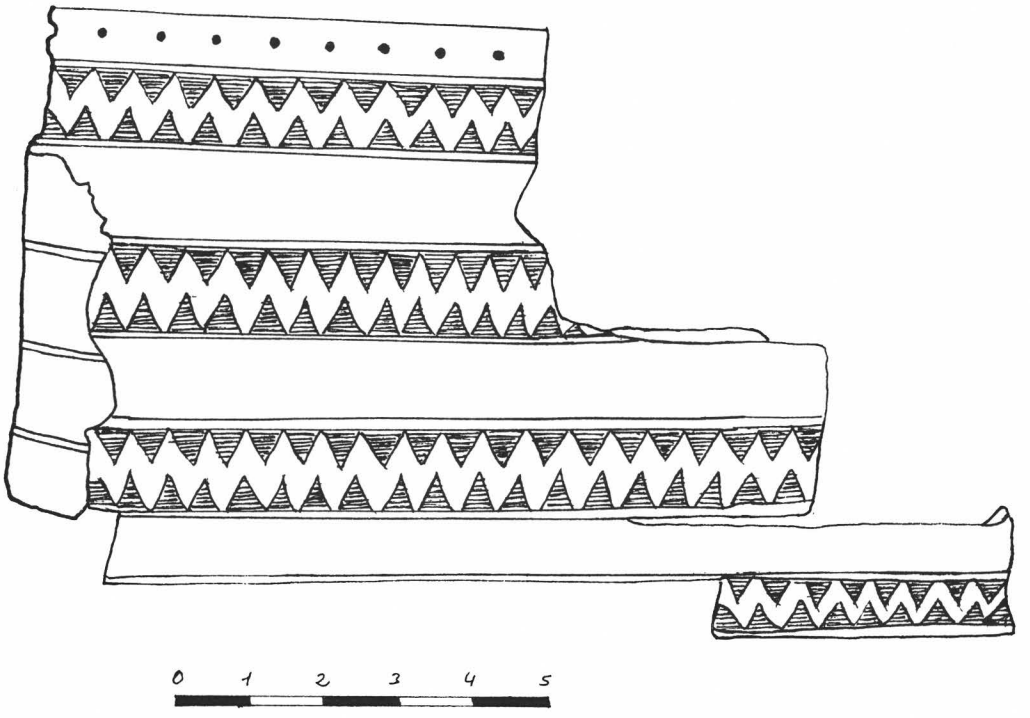


Fig. 10.3 Urartian belts: Category B.



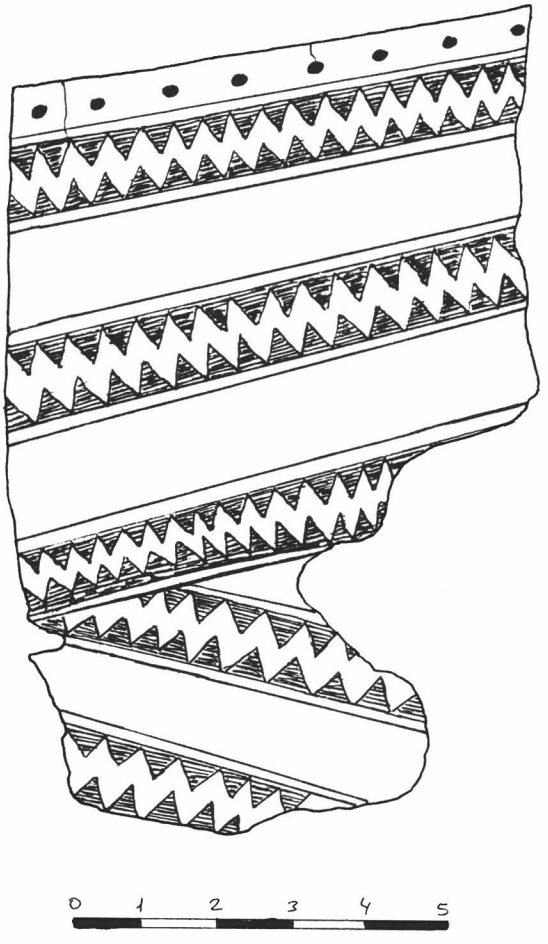
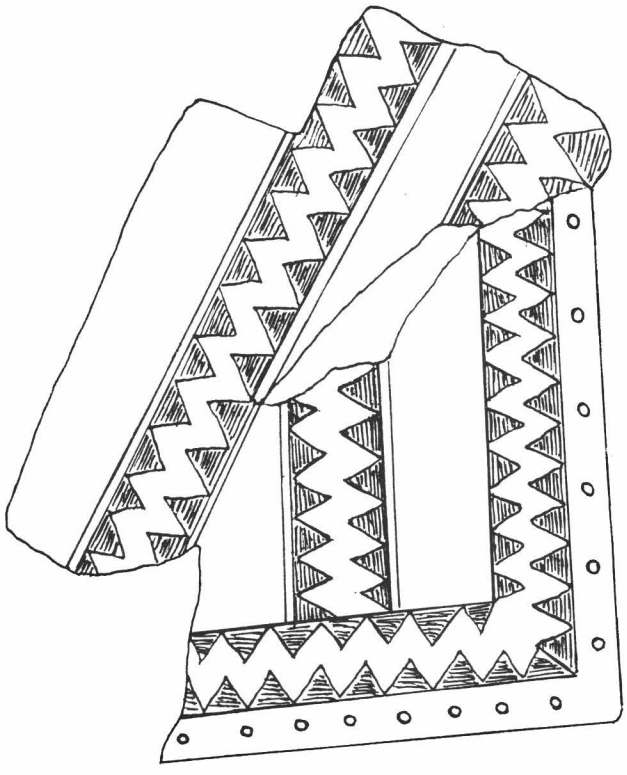


Fig. 10.4.1 and 2 Urartian belts: Category B.



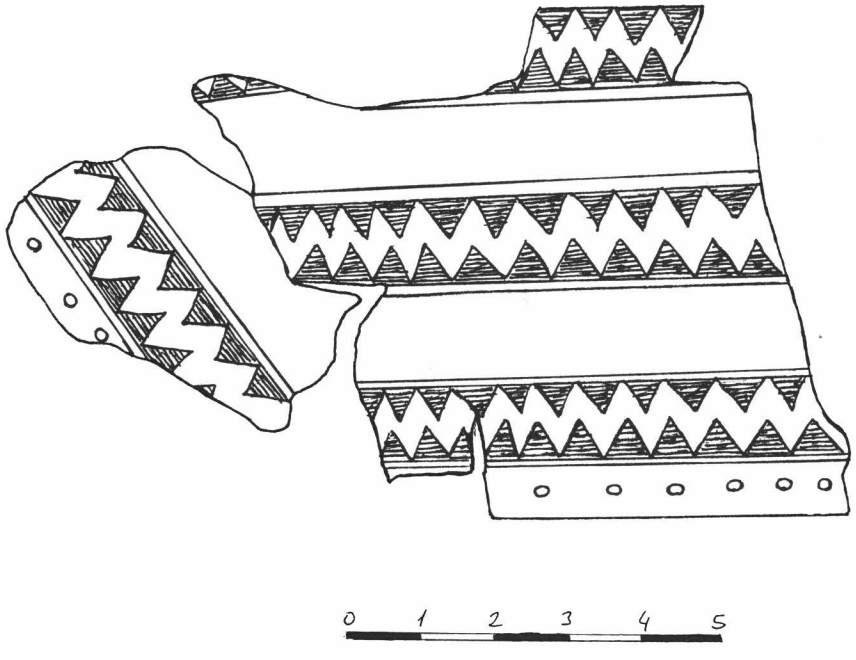


Fig. 10.5.1 and 2 Urartian belts: Category B.

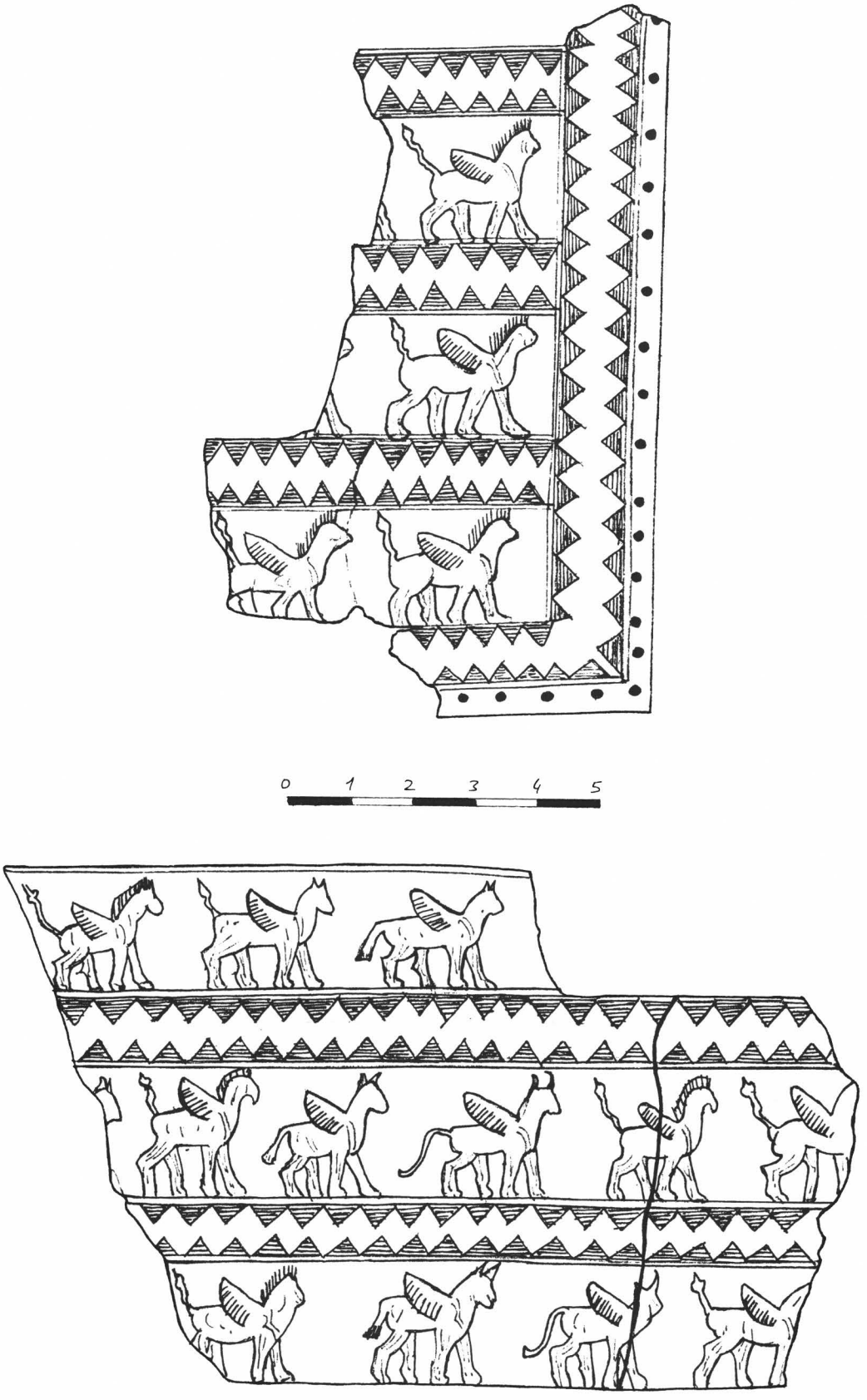
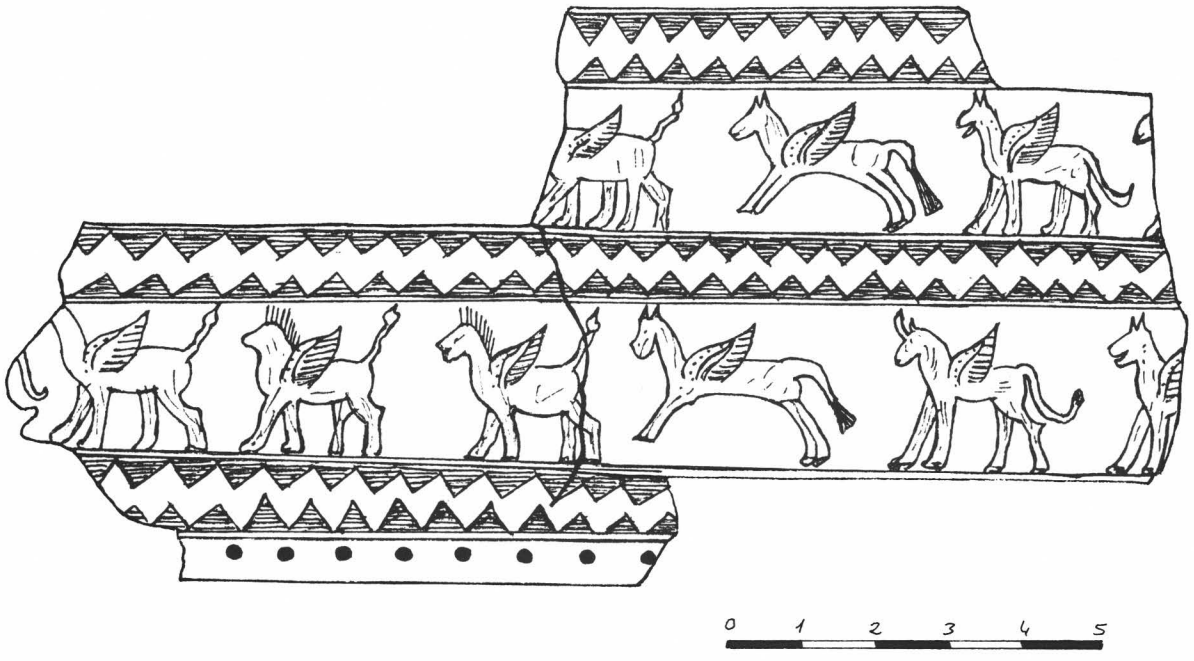


Fig. 10.6.1 and 2 Urartian belts: Category C.



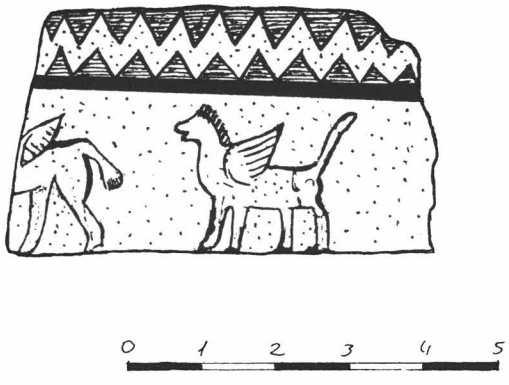


Fig. 10.7.1 and 2 Urartian belts: Category C.

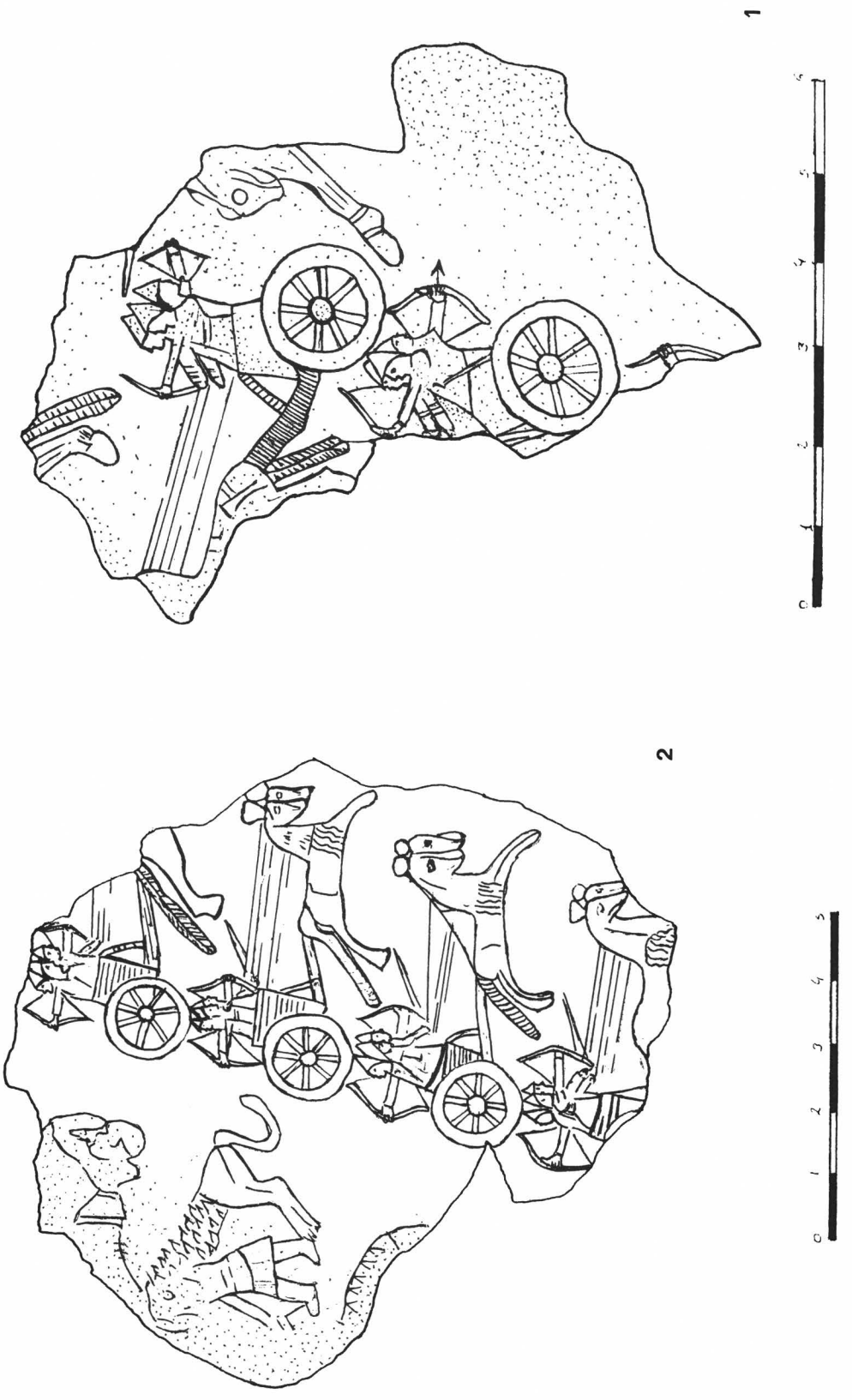


Fig. 10.8.1 and 2 Urartian belts: Category D.

Fig. 10.9 Urartian belts: Category D.

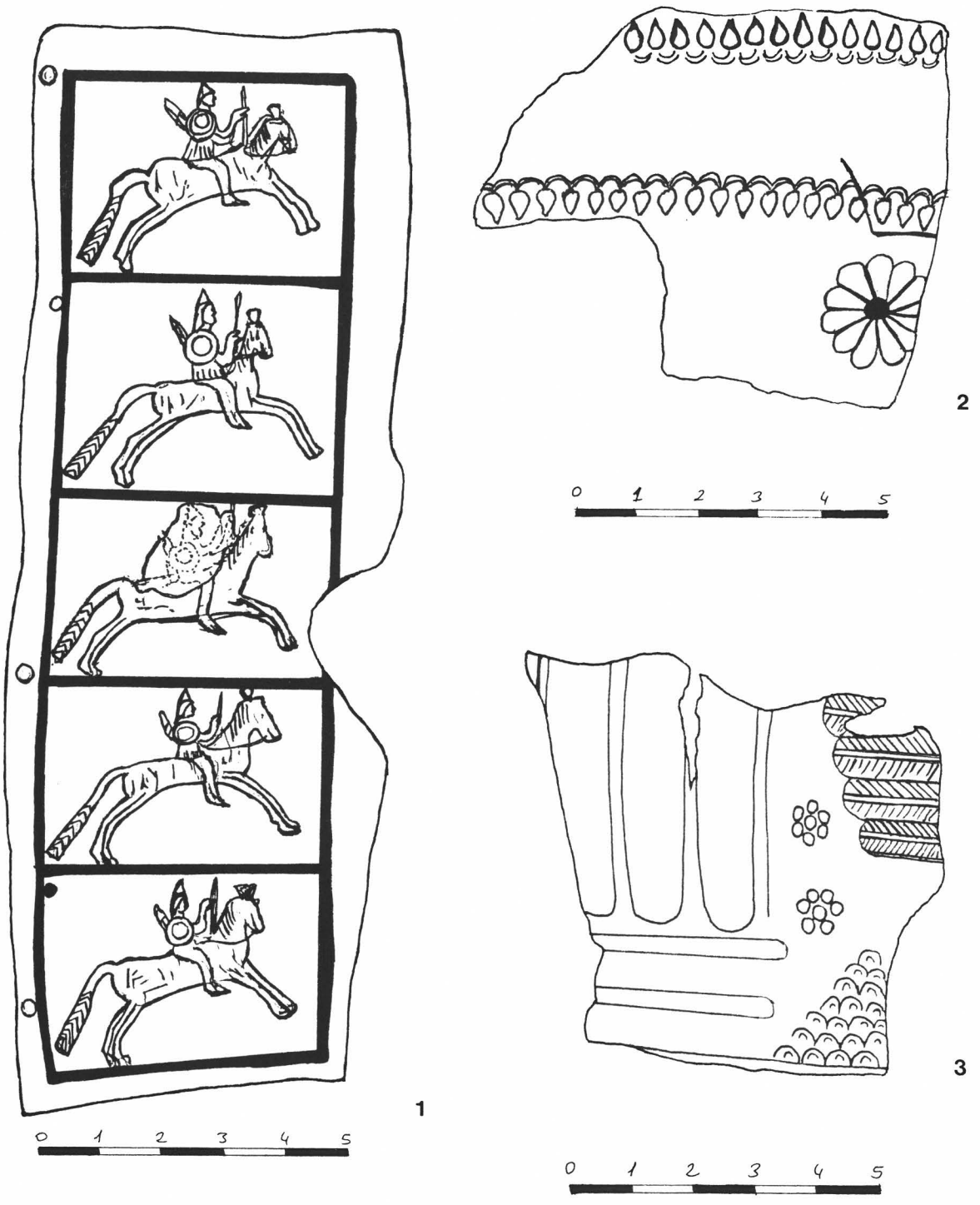


Fig. 10.10.1 Urartian belts: Category E.
Fig. 10.10.2 and 3 Urartian belts: Category F.

11. THE IRON AGE FINDS FROM KICIKIŞLA NEAR KARAPINAR

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Konya

Attention is drawn here to the date and significance of a group of Iron Age pottery which has passed into Museum and private collections. It has been thought that these pots came from Karapınar. In fact they were found at the mound near Kıcıkışla, 26 km NE of Karapınar.

The date of the pottery is, in general, the 7th century BC. The pottery itself combines Middle or Late Phrygian ware, 'Black-on-Red' ware (better known in South and Southwest Anatolia) and Ionian ware ('Ionian bowl').

The significance of the pottery in relation to trade routes linking Central Anatolia with the Çukurova and the East-West maritime traffic in the Mediterranean is then discussed and emphasized.

It cannot be said that the Iron Age, in other words, the Phrygian period, has been properly investigated in the southern parts of Central Anatolia, especially on the settlements in the Konya plain. The finds from Alaattin Tepe in the centre of Konya (Akurgal 1955: Pls. 21, 22), well known in literature, and from several survey reports (Mellaart 1955: 116), demonstrate that the region possesses an important amount of Iron Age material. Besides these surveys, the Phrygian vessels from Karapınar now in the Archaeological Museums of Konya (Alp 1976: 537, Pls. 328-330), Ereğli (not yet published), İstanbul (Mellink 1967: Pl. 56, Figs. 10, 11) and the Kocabaş collection (Tigrel 1976: 557, Pls. 330.a-f) also emphasise the importance of the Iron Age in the region.

First of all, I should state that the vessels, which are published in the literature as from Karapınar and which I shall discuss here, were found by villagers at the mound near Kıcıkışla, Karapınar. They were then distributed to the Museums and to the collection mentioned above. Kıcıkışla or the main provenance, Yağma Höyük, is situated at Yaylapınar mevkii which is 4 km south of the Kıcıkışla village. The village is actually situated on the Gölören road, 26 km northeast of Karapınar. The oval shaped mound is oriented northeast - southwest. It is 35 m high from the plain level (this is the highest point on the northern axis; the highest point on the southern axis is 27 m), where the length of the base is 250 m and the width 100-125 m (**Pl. 11.1** and **Fig. 11.1**). The old, east road running to Tyana from Iconium and passing through Savatra also passes by the Kıcıkışla mound. This road follows almost the same route as the modern, gravel road.

I conclude from information given by the villagers and from the good condition of the Kıcıkışla finds that they were found in graves. Again it was learnt from the villagers that these graves were located in the orchards to the south of the mound and that there were different types of graves. Some were round and encircled with stones like a well, whereas others were like stone sarcophagi (*i.e.* cist-graves). We could not locate, however, any recently opened grave.

By their shape and decoration (Alp 1976: Pls. 328.a, b, 329.a; Tigrel 1976: Pl. 330.a Figs. 1, 2, Pl. 330.b Figs. 3, 4, Pl. 330.c Fig. 5, Pl. 330.d Fig. 6), the Phrygian vessels unearthed at Kıcıkışla belong to the same pottery group called Middle or

Late Phrygian (Akurgal 1955: 10, Figs. 29-31, 37 and Pls. 26, 27, 33) (from Alişar) along with others unearthed at important centres in Central Anatolia (such as Gordion, Kültepe, Elbistan Karahöyük, Alişar, Eskiyapar, Boğazköy, Maşat Höyük *etc.*). Among these vessels there are one handled jugs. Some of these jugs are squat and have trefoil mouths whereas others have cut off beak-spouted mouths. These white-coated vessels are decorated with reddish brown or black paint. The decorations are usually composed of geometric or stylised organic figures (rosette, fish *etc.*).

The Kıcıkışla pottery is not my subject today and I do not intend, therefore, to give a full description of the pottery. I prefer to search for answers to the unsolved problems. I would like to affirm, however, that the Phrygian vessels were not the only finds from these graves. I learnt from the people of Kıcıkışla, when they were giving an account of the pottery-group found by them and later seized by the Konya Museum (Alp 1976: Pls. 329.b, 330.a) , that the graves also produced brick-red coated and grey-black decorated vessels (1). Among these pots, the round mouthed jugs, plates with round bases or feet, small spouted vessels, askoi and the geometric decoration are particularly worthy of attention. These vessels belong to the same group found especially in the south and southwest of Central Anatolia and are also very common in Cilicia region during the Iron Age (Mellaart 1955: 119). This type is described as 'Black-on-Red' by Mellaart. The finds from Kıcıkışla are particularly important because they display different shapes and are in good condition. The 'Ionian bowl' (**Pl. 11.2**) from the same group along with the other Kıcıkışla finds is now on display in the Konya Archaeological Museum . Like the first group of Phrygian vessels, the second group was also unearthed by non-professional people. It is difficult, therefore, to discover whether they were found together in the same type of graves or at different places at different times. I think, however, that they were all excavated at the same time because they are all from the same period.

It is apparent that all these vessels were imported. Without any doubt the first group was imported from the north, in other words, from the known centres in the Sakarya and Kızılırmak regions. Kıcıkışla is thus a new site on the very south of the region where Phrygian pottery is seen. In the Iron Age, the region should lie within the boundaries of the Tabal Kingdom. It is not very clear when and how the second and the third groups of vessels reached Kıcıkışla. The vessels decorated with grey-black paint on a red slip were very common in southwest Anatolia and in Cilicia but we still do not know the exact production centre.

There are resemblances in shape and in decoration between some of the Kıcıkışla finds and Lydian vessels from Western Anatolia. It is accepted that 'Ionian bowls' were produced in some of the Ionian cities and on Rhodes. The second and third groups of vessels which are now on display in the Konya Archaeological Museum were most probably imported from Western Anatolia. The resemblances in clay and decoration between these two groups demonstrate that there was a trade relationship between Western Anatolia and Kıcıkışla located in the southeast of Central Anatolia. I think that the route of this trade was through Cilicia although at the moment there is no clear evidence for this theory. In fact Cilicia with its harbours was a safe route for east-west relations after the mid 7th century BC. The destination of Cilicia's eastern sea-trade was the cities of Syria and Palestine. On this trade route are located colonies from the important centres of Western Anatolia and the off-shore islands and even from Athens. We should accept, therefore, the natural presence of vessels of western origin. The next stage should be the determination of the relations between Central Anatolia and Cilicia. For the moment, many problems concerning this relationship are

waiting to be answered. It is still not possible, therefore, to make a precise statement but we do know that communications between the Konya plain and the East went both through the Cilician Gates on the Ulukışla-Tarsus road and along the Karaman-Silifke route. Accordingly, the oldest cities of eastern Cilicia such as Tarzi-Tarsus, Seli-Soloi, Celenderis *etc.* were situated not only on the east-west route but also were located at the beginning of routes connecting Central Anatolia with the Mediterranean. Consequently I think that investigations still to be carried out will throw light on the role of Cilicia in the transport of vessels of western origin to Central Anatolia.

We know that the Phrygian vessels from Kıcıkışla are generally dated to the 7th and 6th centuries BC (Akurgal 1955: 39, 51). The Ionian, Eastern Greek, vessels from Kıcıkışla should also be dated to 700-600 BC, especially to the second half of the century (see Roebuck 1959: 64). Here the most problematic vessels are those which are called 'Black-on-Red'. According to Mellaart, they first appeared in the 8th century BC (Mellaart 1955: 122; Bossert 1957: 62). I still think, however, that the Kıcıkışla vessels should be dated to a somewhat later period, perhaps to the 7th century BC.

Notes

1. See Tigrel 1976: Pl. 330e, Figs. 7, 8, Pl. 330f, Figs. 9, 10 for the similar vessels in the Kocabaş collection.

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Pl. 11.1 General view of mound, from SW.

Pl. 11.2 Ionian bowl.

Fig. 11.1 Topographic plan of mound.

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